



EUROPEAN CENTRAL BANK

EUROSYSTEM

MONTHLY BULLETIN

10TH ANNIVERSARY OF THE ECB

1998 - 2008

MONTHLY BULLETIN  
10TH ANNIVERSARY OF THE ECB



EUROPEAN CENTRAL BANK  
THE FIRST TEN YEARS



EUROPEAN CENTRAL BANK

EUROSYSTEM



## MONTHLY BULLETIN 10TH ANNIVERSARY OF THE ECB

In 2008 all ECB publications feature a motif taken from the €10 banknote.



© European Central Bank 2008

**Address**

Kaiserstrasse 29  
60311 Frankfurt am Main  
Germany

**Postal address**

Postfach 16 03 19  
60066 Frankfurt am Main  
Germany

**Telephone**

+49 69 1344 0

**Website**

<http://www.ecb.europa.eu>

**Fax**

+49 69 1344 6000

*This Bulletin was produced under the responsibility of the Executive Board of the ECB. Translations are prepared and published by the national central banks.*

*All rights reserved. Reproduction for educational and non-commercial purposes is permitted provided that the source is acknowledged.*

*Photographs:*

*ESKQ  
EUMETSAT  
Claudio Hils  
Martin Joppen*

*The cut-off date for the statistics included in this issue was 9 April 2008.*

ISSN 1561-0136 (print)  
ISSN 1725-2822 (online)



# CONTENTS

<b>FOREWORD</b>	<b>5</b>	Boxes:	
		1 Modelling the euro area economy	<b>36</b>
<b>HISTORICAL CONTEXT</b>	<b>8</b>	2 Key communication tools and channels used by the ECB	<b>50</b>
<b>INTRODUCTION</b>	<b>11</b>	3 The Eurosystem's collateral framework	<b>54</b>
<b>INSTITUTIONAL SETTING AND WORKINGS OF THE EURO AREA</b>	<b>21</b>	4 The transmission mechanism of monetary policy	<b>59</b>
<b>THE ECB'S MONETARY POLICY STRATEGY AND ITS IMPLEMENTATION</b>	<b>33</b>	5 Understanding inflation persistence and determinants of wage dynamics	<b>80</b>
<b>ECONOMIC POLICY CHALLENGES AND ENLARGEMENT</b>	<b>65</b>	6 Preliminary findings of the ECB's work on financial development	<b>104</b>
<b>THE EURO'S IMPACT ON TRADE AND CAPITAL FLOWS AND ITS INTERNATIONAL ROLE</b>	<b>89</b>	7 Role of the Harmonised Index of Consumer Prices	<b>135</b>
<b>FINANCIAL INTEGRATION</b>	<b>101</b>		
<b>FINANCIAL STABILITY AND OVERSIGHT</b>	<b>117</b>		
<b>STATISTICS</b>	<b>133</b>		
<b>EURO BANKNOTES – A TANGIBLE SYMBOL OF INTEGRATION</b>	<b>139</b>		
<b>CONCLUDING REMARKS</b>	<b>145</b>		
<b>ANNEX</b>			
10 years of euro area statistics and their comparison with those for other major economic areas	<b>149</b>		

## ABBREVIATIONS

### COUNTRIES

BE	Belgium	LU	Luxembourg
BG	Bulgaria	HU	Hungary
CZ	Czech Republic	MT	Malta
DK	Denmark	NL	Netherlands
DE	Germany	AT	Austria
EE	Estonia	PL	Poland
IE	Ireland	PT	Portugal
GR	Greece	RO	Romania
ES	Spain	SI	Slovenia
FR	France	SK	Slovakia
IT	Italy	FI	Finland
CY	Cyprus	SE	Sweden
LV	Latvia	UK	United Kingdom
LT	Lithuania	JP	Japan
		US	United States

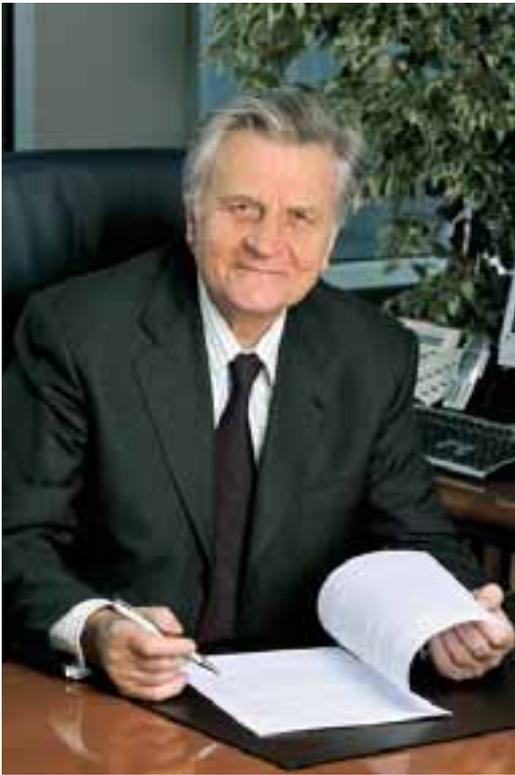
### OTHERS

BIS	Bank for International Settlements
b.o.p.	balance of payments
BPM5	IMF Balance of Payments Manual (5th edition)
CD	certificate of deposit
c.i.f.	cost, insurance and freight at the importer's border
CPI	Consumer Price Index
ECB	European Central Bank
EER	effective exchange rate
EMI	European Monetary Institute
EMU	Economic and Monetary Union
ESA 95	European System of Accounts 1995
ESCB	European System of Central Banks
EU	European Union
EUR	euro
f.o.b.	free on board at the exporter's border
GDP	gross domestic product
HICP	Harmonised Index of Consumer Prices
HWWI	Hamburg Institute of International Economics
ILO	International Labour Organization
IMF	International Monetary Fund
MFI	monetary financial institution
NACE Rev. 1	Statistical classification of economic activities in the European Community
NCB	national central bank
OECD	Organisation for Economic Co-operation and Development
PPI	Producer Price Index
SITC Rev. 3	Standard International Trade Classification (revision 3)
ULCM	unit labour costs in manufacturing
ULCT	unit labour costs in the total economy

**In accordance with Community practice, the EU countries are listed in this Bulletin using the alphabetical order of the country names in the national languages.**



## FOREWORD



The European Central Bank (ECB) was founded on 1 June 1998. It became the independent central bank for Europe's single currency, the euro, which was launched in January 1999. A single currency among a group of countries cannot exist without a common central bank and a common system of central banks. So, the ECB and the European System of Central Banks (ESCB), comprising the ECB and the central banks of all European Union (EU) Member States, were given the mandate to maintain price stability and to safeguard the credibility of the euro.

In May 1998 the European Council made one of the most far-reaching decisions in the history of European integration. The leaders of the EU decided that 11 Member States had fulfilled the conditions for adopting the euro. This milestone had its origins in the Maastricht Treaty of 1992, which set out the institutional framework of the ESCB. The Treaty took monetary policy-making to a supranational level and insulated it from any pressures, including those exerted

by governments, thus ensuring the full independence of the ECB. It also granted the ECB the exclusive right to authorise the issue of banknotes.

The Maastricht Treaty had been negotiated and ratified by national parliaments on the assumption that all members of the EU will, in the fullness of time, adopt the euro and therefore that the ESCB will carry out all the tasks related to the single currency. However, until that time, a group of central banks within the ESCB – the Eurosystem, comprising the ECB and the central banks of the countries in the euro area – is the key actor. The main decision-making body of the Eurosystem is the Governing Council of the ECB, which consists of the six members of the Executive Board of the ECB and the governors of the national central banks (NCBs) of the euro area countries.

The Governing Council of the ECB has defined price stability as a positive rate of inflation of below 2%, and has announced that it aims to maintain inflation below, and close to, 2% over the medium term. For nearly ten years, price stability has been broadly achieved despite the fact that strong global commodity price increases – on which monetary policy has no direct influence – have affected Europe and the rest of the world, leading to an average inflation rate that has been slightly above 2% since the launch of the euro. This is a remarkable result, taking into account all the shocks that have marked the period and the track record of the economies participating in the euro area. In the decades before the launch of the euro, average annual inflation rates in the respective countries were significantly higher than in the euro area over the last ten years.

Stable prices are essential. Not only because they protect the value of the incomes of all and particularly of the most vulnerable and the poorest of our fellow citizens, but also because delivering price stability and being credible in its delivery over the medium term is one of the preconditions for sustainable growth and job creation. By anchoring expectations of future

inflation to low levels, in line with our definition of price stability, the ECB has reduced inflation risk premia, securing a financial environment favourable to growth and job creation. Between the launch of the euro and the end of 2007, the euro area created more than 15 million new jobs and the unemployment rate was at its lowest level since the early 1980s.

The euro is playing a very important role in promoting the functioning of our vast continental market, and therefore in accomplishing a true Single Market. It has also helped to protect the euro area economy from the many global shocks and considerable turbulence of the last few years.

These achievements have taken time and considerable effort, for the ECB has been moving in uncharted waters, making decisions of considerable scale and complexity, and acting on them together with all the members of the Eurosystem, the national central banks of the euro area. Among our many tasks in recent years, we have needed to understand how the newly created monetary union would function, once created, and what the complex dynamics of a major economic area moving towards full economic and monetary unification would be.

This special edition looks back at the ECB's work over the past ten momentous years, addresses some of the most difficult developments over this period, and also looks at the challenges that the ECB and the euro area face as they enter their second decade.

Those challenges include, above all, making the euro area more flexible and adaptable by improving structural and fiscal policies, as well as raising its growth potential. There is a permanent need to understand ongoing changes in the economy and adapt our tools to this in order to identify what is driving future inflation. To remain credible, monetary policy needs to be constantly alert, keeping inflation expectations in line with our definition of price stability. We also have to work out how best to prepare for future euro area enlargements.

The achievements of the past decade are due to the vision and determination of the Governing Council members, past and present, and due to the energy and efforts of all staff of the Eurosystem. On this special occasion, I would like to express my sincere thanks to all those who have helped to build a solid foundation for the euro. The single currency has become a proud symbol of a continent that has grown in stature.

The Eurosystem works as a team, serving the 320 million citizens who live in the 15 countries that have decided to share their destinies. The euro is our currency, and the people of Europe know that we are faithful to the mandate they have given us.

To all the ECB and NCB staff involved, I express my deepest gratitude for their outstanding contribution and for making this publication possible.

A handwritten signature in blue ink, appearing to read 'J. Trichet', with a stylized flourish on the left side.

Jean-Claude Trichet, President of the ECB



**The Executive Board in June 1998:**

**Back row (left to right):**  
Tommaso Padoa-Schioppa,  
Otmar Issing,  
Eugenio Domingo Solans

**Front row (left to right):**  
Christian Noyer (Vice-President),  
Wim F. Duisenberg (President),  
Sirkka Hämäläinen



**The Executive Board in June 2008:**

**Back row (left to right):**  
Jürgen Stark,  
José Manuel González-Páramo,  
Lorenzo Bini Smaghi

**Front row (left to right):**  
Gertrude Tumpel-Gugerell,  
Jean-Claude Trichet (President),  
Lucas D. Papademos (Vice-President)

## HISTORICAL CONTEXT

European monetary integration goes back to the early 1960s when the six members of the European Economic Community (EEC) started cooperating in monetary affairs. The first concrete proposal for a European economic and monetary union also emerged around that time. It called for the free trade area set up under the Treaty of Rome to lead to an economic union by the end of the decade. But no action was taken as the international monetary system remained stable for several years thereafter. Only in 1969, following a series of exchange rate and balance of payments crises, did the leaders of the six members of the EEC decide to draw up a plan for an economic and monetary union. Their decision led to the Werner Report in 1970, which envisaged the creation, in three stages, of such a union by 1980. Interest in this ambitious plan lapsed in 1971 after the demise of the Bretton Woods fixed exchange rate regime. At the same time, European countries realised that untamed exchange rate fluctuation could harm further trade integration. An initial step, in 1972, which was called the “snake”, sought to stabilise exchange rates among some European currencies, but it fell victim to further currency unrest and the international recession that followed the first oil crisis in 1973. By 1977, after various currencies had joined or left the “snake”, the system was reduced to a “Deutsche Mark area” consisting of Germany, the Benelux countries and Denmark.

In 1979 France and Germany pushed forward the cause of monetary integration again, leading to the creation of the European Monetary System (EMS), which lasted until the launch of the euro in 1999. The emphasis was put on monetary policy coordination and convergence towards price stability as being supportive of stable exchange rates. During this period, links between central banks were strengthened further, exchange rate realignments were made conditional on convergence policy commitments in order to reduce the frequency and impact of disruptive devaluations (which nevertheless occurred from time to time), capital controls were removed, low-inflation policies prevailed in every country, and economic integration made

big strides. The years of experience with the EMS taught some lessons about the importance of sustainable nominal convergence and fiscal discipline.

Towards the end of the 1980s the feasibility of a European economic and monetary union started being discussed once more. The European Council mandated a committee of experts, under the chairmanship of Jacques Delors, to make proposals for the realisation of Economic and Monetary Union (EMU). The resultant “Delors Report” mapped out the Maastricht Treaty, which was signed by the Heads of State or Government of the EU Member States in 1992 and ratified by all EU countries by 1993. It laid the foundations for the introduction of the single currency nearly a decade later. The ensuing period was used to move the convergence process forward and make the necessary institutional arrangements. The European Monetary Institute (EMI), which was established in 1994, started preparing the regulatory, organisational and logistical framework for the new supranational central banking system. This groundwork was essential for setting up the ECB and the ESCB, for allowing them to perform their tasks and for launching the new single currency.

In May 1998 the Council of the European Union decided that 11 countries had fulfilled the convergence criteria, namely the set of conditions established for adopting the euro. 1 June 1998 saw the establishment of the ECB and the ESCB. Until all members of the EU adopt the euro, the key actor is the Eurosystem, comprising the ECB and the central banks of the countries in the euro area.

From the outset, the European Central Bank and the Eurosystem faced some daunting challenges. In particular, as a new institution, the ECB had to gain credibility and win the confidence of the public and the financial markets that it would maintain price stability. As a brand new institution, it also had to set up a framework to work effectively with the NCBs of the Eurosystem. These tasks were complicated by the entirely new institutional

and economic environment. In fact, the euro created a new economic and financial entity, with characteristics that had not been fully studied, and with implications that were not fully understood.

This special 10th anniversary edition of the Monthly Bulletin looks back at the ECB's and Eurosystem's work and achievements over the past ten momentous years. It also looks at a number of future challenges and ways forward in the ECB's areas of responsibility. In reviewing the working of the ECB and the Eurosystem, two aspects stand out:

- First, over the years, monetary integration has advanced in parallel with economic integration. In fact, the European path to EMU is unique in history, as it is based on the concept of a single market for sovereign countries. This is quite different from most monetary unions in the past, where the prior creation of a political union (a nation state) paved the way for the establishment of a single market with homogeneous conditions for enterprises and households. We expect the euro to have benign effects in promoting further economic and financial integration. This aspect is discussed at some length in Chapters 4, 5 and 6, which deal respectively with real economic integration, increasing trade openness and financial market integration.
- Second, in the Eurosystem decision-making is centralised, while implementation is decentralised. The decentralisation of the Eurosystem offers three key advantages. The first is that the ECB benefits from the expertise, infrastructure and operational capabilities of the NCBs of the Eurosystem. The second advantage is that the NCBs facilitate communication between the ECB and the people of the euro area, as they speak the language(s) of each country and know its culture(s). The third advantage is that the NCBs provide the credit institutions in each country with access to the central

banking network, an important factor given the size of the euro area and the long-standing relationships between the national banking communities and their NCB. The framework has functioned smoothly over the past decade. It has also successfully handled the enlargement of the European Union and the euro area.

In these ten years, the ECB has attained a high degree of credibility worldwide. It will be important to maintain this credibility, while meeting all future challenges as the euro area enters its second decade. In this special 10th anniversary edition of the Monthly Bulletin, we show that in many ways we now share a common destiny.

## THE EUROPEAN SYSTEM OF CENTRAL BANKS (ESCB)



## THE EUROSISTEM





## I INTRODUCTION

*"... to make all men work together, to show them that, beyond their divergences or over and above frontiers, they have a common interest."*

Jean Monnet

This special edition of the Monthly Bulletin reviews the first ten years of operations of the European Central Bank (ECB) and of the Eurosystem, which consists of the ECB and the central banks of the European Union countries that have already adopted the euro. It describes how this new institution and system have worked during this eventful decade and looks ahead to some of the challenges they may face in the next ten years and beyond.

The ECB is fulfilling its primary objective to maintain price stability, and its monetary policy strategy is credible and well understood. While setting a single monetary policy is the most visible of the tasks of the ECB, it is by no means the only one. In order to fulfil its objective, the ECB has to perform diverse tasks and activities, some of which were also specified in the Maastricht Treaty, while others complement the setting of the single monetary policy. Hence, this special edition is an aid to better understanding the various other tasks of the ECB and the Eurosystem.

The creation of the ECB and the ESCB, and the launch of the euro led to a new institutional setting for Economic and Monetary Union (EMU). This setting combines a centralised monetary policy with decentralised fiscal and structural policies. Chapter 2 explains how the competence for the single monetary policy was transferred to the supranational level (i.e. to the Community level). The newly created institution in charge of setting monetary policy, the ECB, was granted a high degree of independence by the Treaty. We explain that this entails a combination of institutional independence as well as personal, financial and functional independence. The new Lisbon Treaty lists the ECB as one of the institutions of the Union. This reflects the fact that monetary policy is indivisible and that central banks need to be independent to deliver price stability. By contrast, fiscal policies are more efficiently set at national level – subject to the parameters of the Stability and Growth Pact – in order to take into account national characteristics and institutional settings. Structural policies are also set at national level but are subject to peer review and coordination within the framework of the Lisbon Strategy.

EMU's new institutional setting provides appropriate coordination procedures which take account of the increased interdependence of euro area countries. As a result, the ECB and the Eurosystem need to exchange information and have frequent interactions with several other European institutions and bodies, such as the council bringing together the ministers of finance (the ECOFIN Council) and its diverse preparatory committees, the Eurogroup and the European Commission. In addition, the ECB has to report to the European Parliament. Since September 1998 the practice has been satisfactory. However, policies defined at national level would need to take into consideration the requirements of the Community as the euro area's integration makes further progress.

The Governing Council of the ECB is responsible for formulating the monetary policy of the euro area and for setting the guidelines for its implementation. In October 1998 they did precisely that: they announced a stability-oriented monetary policy strategy designed to achieve the primary objective of price stability as laid down in the Maastricht Treaty. The strategy – which was further clarified in 2003 – has two main elements: a quantitative definition of price stability, and a "two-pillar framework". The first element implies that the primary objective of the ECB is to keep inflation below but close to 2%. There is in fact a broad consensus that maintaining price stability is the best contribution that monetary policy can make to economic welfare. The second element is

**ECB has one overriding objective: price stability**

**EMU's institutional setting combines centralised monetary policy with ...**

**... decentralised fiscal and structural policies ...**

**... and requires more exchanges of information and coordination**

**Governing Council sets monetary policy**



**Two-pillar framework for euro area**

the “two-pillar framework”, which is based on an economic analysis and a monetary analysis. Both are relevant for assessing the different risks to price stability. The economic analysis has a short to medium-term horizon. It draws on a wide range of economic and financial statistics and indicators relevant to the outlook for prices. The monetary analysis, by contrast, has a medium to longer-term horizon, and attaches a prominent role to monetary and credit developments. The two-pillar framework allows the internal analysis to be well-structured and facilitates communication to the general public and financial markets.

**Eurosystem required unprecedented preparation**

Chapter 3 provides details of the key features and elements of the strategy, its implementation, and of the conduct of monetary policy since the launch of the euro in 1999. This chapter also draws attention to the extensive work that was needed to ensure the functionality of the Eurosystem. This work included establishing the infrastructure for the implementation of the single monetary policy. The ECB also needed to set up its own organisation and procedures. This chapter also stresses that the ECB and the Eurosystem started operating with limited knowledge of how the euro area might function once monetarily integrated. Conducting monetary policy is not easy even in normal times, but with this unprecedented move from tried-and-tested national policies to a novel supranational one, it was particularly challenging. Major investments were made in research, analysis and statistics from the outset and a large range of models and tools continues to be developed today, and helps to generate up-to-the-minute data. Much of this analysis is public and subject to peer review, so it is a common good.

**Economic reforms are key to smooth functioning of euro area**

Chapter 4 reviews the policy challenges and macro-performance of the euro area. Analysis of real economic trends and economic policies serves diverse purposes, for example, it contributes to the above analysis under the two-pillar strategy and to the analysis of the monetary transmission process; and it permits recognition of the macroeconomic trends for which structural and fiscal policies, as well as global developments, are mainly responsible and their impact on inflation pressures. This chapter covers some euro area trends in real growth, productivity and, labour markets over these ten years. It is remarkable that, over the last decade, the overall framework of EMU has supported very sustained employment growth. Fiscal policies are then discussed before presenting some stylised facts on cross-country differentials in real output growth and inflation.

Several lessons emerge from this chapter. Looking ahead, structural reforms and sound fiscal policies are crucial for overall macroeconomic stability as well as a good performance in these fields, i.e. for high employment and output growth, low natural unemployment and the absence of major differentials in cross-country developments. Cross-country cost and inflation differentials, which are due to inappropriate wage developments as well as fiscal and structural rigidities, may cause losses in competitiveness and adversely impact on employment and output growth. The proper functioning of adjustments to specific shocks should be ensured through flexible labour and product markets, completion of the Single Market and well-designed sustainable fiscal policies. Finally, those countries which aim to adopt the euro in the future are well advised to take into consideration the above issues in their convergence processes when they choose to join the euro area.

**Monetary Union’s effects on the economy**

The euro is gradually changing the economies of the euro area. In business, some costs, such as exchanging currencies or hedging against volatile exchange rates, have fallen or even disappeared completely. Information costs, such as the need to compare prices of goods and services internationally, are on the decline. The euro is also expected to boost the Single Market – i.e. remove the remaining barriers to the circulation of goods, services and people – by enhancing price transparency and discouraging price discrimination. This should help to reduce market segmentation and foster competition. The euro is also more efficient than the multiple currencies it replaced as a

medium of exchange and unit of account. In this special Monthly Bulletin we consider various ways in which the euro is helping to change Europe's financial markets and macro-performance. Of course, such effects, rendering the euro area more integrated, work slowly and may take several decades to unfold fully.

One area where change is already quite measurable is the international dimension of the euro. In Chapter 5 we cover four dimensions of this change: trade in goods and services, capital flows, the international role of the euro, and the ECB's relations with third countries and international institutions and bodies. We look at developments among euro area countries (i.e. the intra-euro area) and of the euro area as a whole vis-à-vis the rest of the world (i.e. the extra-euro area). Anecdotal evidence and economic analysis indicate that the euro has been promoting trade, foreign direct investment (FDI) and cross-border portfolio investment among euro area countries. This is tantamount to the euro area investing in itself. While fostering intra-euro area trade, the euro has enhanced competition within the euro area and the convergence of trade prices. In parallel, the euro has helped to increase efficiency in both home and host countries through the reallocation of capital, particularly in the manufacturing sector. Moreover, by promoting portfolio flows among euro area members, the euro has favoured a diversification of investment and consumption risks. These phenomena are expected to continue in the future. The international dimension of the euro and its use as a reserve and transaction currency are on the rise. It has become the second most important international currency behind the US dollar, which has a more extensive global reach.

Over the past decade the ECB and the ESCB have paid special attention to the adequate functioning of the financial system. Central banks are interested in the financial system and its stability for two main reasons. The first is that, in order to fulfil their main task, namely to secure price stability, the financial system has to function properly. Given that the financial system provides the primary channel through which the single monetary policy is conducted, an integrated, stable and efficient financial system is essential for the smooth and effective transmission of monetary policy impulses throughout the euro area. Moreover, central banks are mainly responsible for the smooth operation of payment and settlement systems and this objective is closely connected to the safety and efficiency of the financial system as a whole. The second reason is that a well-functioning financial system allocates financial resources more efficiently across time and space and is therefore instrumental in achieving higher and more sustainable economic growth. This is an important public policy objective, and it is actively supported by central banks.

The euro area has a multinational nature. Since the start, one key objective of the Eurosystem has been to enhance the functioning of its financial markets, i.e., to foster European financial integration. Chapter 6 reviews the progress which has been made in financial integration since the launch of the euro, the major driving forces and obstacles in this respect, and the contribution of the ECB and the Eurosystem to the integration process. It emphasises that the ECB and the Eurosystem have fostered the financial integration process in four main ways, namely by: (i) enhancing knowledge, raising awareness and monitoring progress in financial integration; (ii) acting as a catalyst for market-based initiatives to foster financial integration, for example, with respect to the establishment of the Single Euro Payments Area (SEPA); (iii) giving advice on the EU legislative and regulatory framework for financial services, and (iv) providing central banking services, including, for example, the facilities for the real-time gross settlement of euro payments (called TARGET) and the cross-border handling of collateral (called CCBM), as well as the TARGET2-Securities initiative, which explores ways of offering settlement in central bank money for securities transactions.

**Euro's international dimension**

**ECB/ESCB pay close attention to financial system**

**Eurosystem works to promote financial integration ...**

... and to contribute to financial stability

Chapter 7 focuses on another core responsibility of the Eurosystem: the safeguarding of financial stability. This task has become increasingly relevant in recent years, as the financial sector has significantly expanded relative to the real economy, and the economic role of financial stability has therefore steadily become more important. While delivering price stability is the best contribution in general terms that the Eurosystem can make to financial stability, it also contributes to this objective in two specific ways. First, the Eurosystem conducts certain financial stability tasks at euro area level. This includes monitoring and assessing the area's financial stability – with the ECB publishing its “Financial Stability Review” twice a year on this subject – as well as performing market operations to address general financial shocks and to relieve tensions in the euro area money market. Second, the Eurosystem plays a part in defining the financial stability policies of the competent national and EU authorities, which entails three main activities: (i) supporting national and EU-wide financial stability monitoring and assessment, (ii) advising on financial regulation and supervision, and (iii) contributing to financial crisis management. In addition, the Eurosystem has direct responsibilities for overseeing market infrastructures, notably payment systems, a task which also strengthens financial system stability. This chapter describes the Eurosystem's responsibilities and main achievements in the fields of financial stability and oversight.

Good statistics essential to in-depth analysis

Chapter 8 explains the importance of high-quality statistics for the euro area and the ECB's need for a comprehensive set of timely, reliable and coherent monetary, financial and economic statistics so that it can undertake its tasks and, in particular, assess the risks to price stability. This chapter also reviews the Harmonised Index of Consumer Prices, which is used by the ECB to assess price stability. Since 1999, the output of ESCB statistics has nearly tripled. Monetary, financial and external statistics have been regularly published in accordance with high-quality standards. Reference documentation is readily available and has contributed to the development of global statistical standards, e.g. on monetary and financial statistics. Various ECB statistics have now been integrated into the fully fledged quarterly financial and non-financial accounts for the euro area. A statistical annex at the end of this special edition presents some selected international comparisons.

Monetary Union in our pockets

Chapter 9 looks at euro banknotes from various angles and includes a brief account of their development in the 1990s and introduction in 2002. The chapter covers the present and future, reporting on the circulation of the currency and its management. The banknotes are truly a visible and successful symbol of EMU and represent a significant achievement, considering the scale of the planning and organisation that went into their introduction.

This special edition of the Monthly Bulletin shows that there are different time horizons at which to judge the performance of the ECB and the Eurosystem over these ten years. Some common threads, which also indicate challenges ahead, emerge:

Committees take euro area perspective

- The Eurosystem combines centralised decision-making with decentralised implementation by the national central banks (NCBs). This holds for all tasks and activities discussed in this special edition. From an organisational standpoint, various technical committees and working groups bring together expert staff from the ECB and all NCBs. Such committees and working groups contribute to the regular processing of a vast amount of data and information from across all euro area countries. This permits a pooling of the best experience and knowledge of the Eurosystem NCBs. At the same time, all these committees and working groups take a euro area perspective. This framework is capable of evolving and has handled enlargement successfully.

- The Eurosystem started out from modest beginnings. There was limited knowledge of how the euro area might function once monetarily integrated. While undertaking monetary policy in an uncertain world buffeted by shocks is a challenge for any central bank, this challenge was severe in the early years of the euro area due to the sheer element of novelty, as discussed in Chapter 3. This explains the heavy investment in analytical tools, research and statistics from the outset, as illustrated in Chapters 3, 4, 5, 6 and 8. A vast range of models and other analytical tools have been developed and are now in use, and are constantly being improved. The bulk of this analysis and information is public. It is available on our website and in publications. It is subject to public scrutiny and peer review.
- The monetary policy strategy of the ECB is based on the best experience of the NCBs of the Eurosystem and combines this knowledge with novel elements. Given the mandate to safeguard price stability by the Treaty, the Governing Council defined a clear inflation objective. This in turn enhances the transparency and accountability of the ECB. The economic and monetary analysis – the two-pillar framework – provides two complementary perspectives from which to assess risks to price stability. It also provides an organising device for the internal analysis and for the external communication. The strategy is now well understood and credible. Credibility helps in anchoring longer-term inflation expectations and lowering inflation volatility. In Chapters 2, 7 and 9 of this special edition we show how the smooth functioning of the ECB's monetary policy strategy has supported various other tasks of the ECB and the Eurosystem.
- The euro – broadly meant to encompass market forces, institutional and organisational changes, and legislative actions – is expected to act as a catalyst of economic and financial integration. Such changes may take a long time to unfold. After all, the European process of economic, financial and monetary integration started back in the 1950s and has advanced gradually since then. The decision to launch the euro was based on the firm belief that the euro area countries were ready for it and that the new single currency would set in motion benign processes bringing those countries closer together. At the same time, several challenges remain and are discussed in this special Monthly Bulletin. In some euro area countries there is still a gap between inflation as perceived by the public and that actually measured: an issue addressed in Chapter 3. There is also room for euro area economies to strengthen their flexibility and resilience to external shocks: an issue addressed in Chapter 4. Moreover, European “regional” integration is advancing in parallel with globalisation, which is also having far-reaching and pervasive effects, as discussed in Chapters 5 and 6. Hence, the euro area will need to evolve further under these combined pressures.
- The fact that the euro area is becoming more interconnected than ever before is changing our views on Economic and Monetary Union. The euro is also an important symbol of identity for Europe.

The euro is now used by 320 million people in the euro area, but also has a wider international circulation than the currencies that it replaced and is increasingly used by the international financial markets, as discussed in Chapter 5. In this 10th anniversary edition we show that the euro has already brought several gains, including price stability and low interest rates. These benefits are supporting other positive developments, which are unfolding gradually but persistently, including more trade in goods and services, and more financial integration, which in turn is spurring financial deepening and modernisation. There is also a remarkable degree of resilience in a complex international environment. In our view, these achievements lend great support to meeting all present

Little was known about how euro area might function

Zone of price stability now wider

Euro as catalyst of integration

Euro has brought price stability and low interest rates

and future challenges for the euro area, and also support the adaptation of national economies. Chapter 10 contains some concluding remarks. The table below lists some of the main institutional events in the history of the Eurosystem.

#### Key institutional events in the history of the Eurosystem, 1998-2008

1998		
May	European Council finds that 11 countries have fulfilled the convergence criteria and can adopt the euro (Stage Three of EMU).	See Foreword
June	The ECB and the ESCB are established.	See Historical context
September	First appearance of the ECB President before the European Parliament.	See Chapter 2
October	First participation of the ECB President in a G7 meeting.	
October	Announcement of the monetary policy strategy.	See Chapter 3.1
November	Adoption by the EU Council of Regulation concerning the collection of statistical information by the ECB.	See Chapter 8
December	Announcement of the quantitative reference value for monetary growth.	
December	ECB is granted observer status by the International Monetary Fund (IMF).	
December	Conversion rates are fixed irrevocably.	See Historical context
1999		
January	Launch of the fiduciary euro. A single monetary policy is established for the euro area.	See Chapter 2
January	Launch of ERM II with Denmark and Greece as initial members.	See Chapter 2
April	Eurosystem agreement on emergency liquidity assistance.	See Chapter 7
July	Euro banknote production begins in several printing works.	See Chapter 9
November	ECB becomes member of the Bank for International Settlements (BIS).	
2000		
March	Lisbon Strategy is adopted by European Council.	See Chapter 2
2001		
January	Greece joins the euro area.	See Chapter 2
April	EU-wide Memorandum of Understanding (MoU) between payment systems overseers and banking supervisors is adopted.	See Chapter 7
August	The euro banknotes are unveiled to the public.	See Chapter 9
September	Pre-distribution of euro banknotes and coins starts.	See Chapter 9
2002		
January	Euro cash changeover: by the end of February 2002 euro banknotes and coins are sole legal tender in all euro area countries.	See Chapter 9
November	First publication of the ECB's report on EU banking structures.	See Chapter 7
2003		
February	First publication of the ECB's report on EU banking sector stability.	See Chapter 7
March	EU-wide MoU on cooperation between supervisory authorities and central banks in financial crisis situations is adopted.	See Chapter 7
March	MoU setting out the respective responsibilities for economic and financial statistics at Community level between the ECB and Eurostat.	See Chapter 8
May	Clarification of the ECB's monetary policy strategy.	See Chapter 3.1
2004		
March	Changes to the operational framework.	See Chapter 3.3
May	National central banks of the ten new EU Member States join the ESCB.	See Chapter 2
June	The currencies of Estonia, Lithuania and Slovenia enter ERM II.	See Chapter 2
December	First publication of the ECB's Financial Stability Review.	See Chapter 7
2005		
March/April	Lisbon Strategy is relaunched as a result of the review carried out by a high-level group chaired by Wim Kok.	See Chapter 2
March/June	Reform of the Stability and Growth Pact.	See Chapter 2

## Key institutional events in the history of the Eurosystem, 1998-2008

May	EU-wide Memorandum of Understanding on cooperation between supervisory authorities, central banks and finance ministries in financial crisis situations is adopted.	See Chapter 7
May	The currencies of Cyprus, Latvia and Malta enter ERM II.	See Chapter 2
August	Eurosystem publishes contribution to Commission consultation on EU financial services policy (2005-2010).	See Chapter 7
September	ECB publishes for the first time indicators of financial integration in the euro area.	See Chapter 6
November	The Slovak koruna enters ERM II.	
<b>2006</b>		
July	TARGET2-Securities initiative launched.	See Chapter 6
<b>2007</b>		
January	Slovenia joins the euro area.	See Chapter 2
January	National central banks of Bulgaria and Romania join the ESCB.	See Chapter 2
March	First publication of the ECB's report on financial integration in Europe.	See Chapter 6
May	Publication of the "Public commitment with respect to the ESCB's statistical function".	See Chapter 8
June	First joint publication, by the ECB and Eurostat, of integrated quarterly euro area economic and financial accounts by institutional sector.	See Chapter 8
November	Eurosystem publishes contribution to the review of the Lamfalussy framework for financial regulation and supervision.	See Chapter 7
December	Lisbon Treaty signed.	See Chapter 2
<b>2008</b>		
January	Malta and Cyprus join the euro area.	See Chapter 2
April	Publication of the "ECB Statistics Quality Framework".	See Chapter 8
April	Agreement on a new EU-wide Memorandum of Understanding on cooperation between supervisory authorities, central banks and finance ministries in financial crisis situations.	See Chapter 7

**The Governing Council  
in June 1998:**

**Back row (left to right)**

Luis Ángel Rojo,  
Alfons Verplaetse,  
Antonio Fazio,  
Yves Mersch,  
António José Fernandes de Sousa,  
Matti Vanhala, Klaus Liebscher,  
Nout Wellink,  
Jean-Claude Trichet,  
Maurice O'Connell,  
Hans Tietmeyer

**Front row (left to right):**

Eugenio Domingo Solans,  
Otmar Issing, Christian Noyer,  
Willem F. Duisenberg,  
Sirikka Hämäläinen,  
Tommaso Padoa-Schioppa



**The Governing Council  
in June 2008:**

**Back row (left to right):**

Jürgen Stark, Erkki Liikanen,  
Klaus Liebscher,  
Nicholas C. Garganas,  
Nout Wellink, Marko Kranjec

**Middle row (left to right):**

John Hurley,  
Miguel Fernández Ordóñez,  
Christian Noyer, Axel A. Weber,  
Lorenzo Bini Smaghi,  
Michael C. Bonello

**Front row (left to right):**

Yves Mersch,  
José Manuel González-Páramo,  
Lucas D. Papademos,  
Jean-Claude Trichet,  
Gertrude Tumpel-Gugerell,  
Athanasios Orphanides



Vítor Constâncio, Mario Draghi and Guy Quaden were not present when the photograph was taken.



**The General Council  
in June 1998:**

**Back row (left to right):**

Luis Ángel Rojo, Antonio Fazio,  
Urban Bäckström,  
António José Fernandes de Sousa,  
Matti Vanhala, Klaus Liebscher,  
Nout Wellink,  
Lucas D. Papademos,  
Edward A. J. George,  
Maurice O'Connell,  
Hans Tietmeyer,

**Front row (left to right):**

Alfons Verplaetse, Yves Mersch,  
Christian Noyer,  
Willem F. Duisenberg,  
Bodil Nyboe Andersen,  
Jean-Claude Trichet



**The General Council  
in June 2008:**

**Back row (left to right):**

Erkki Liikanen, András Simor,  
Klaus Liebscher,  
Nicholas C. Garganas,  
Axel A. Weber,  
Reinoldijus Šarkinas,  
Nout Wellink, Andres Lipstok

**Middle row (left to right):**

John Hurley, Nils Bernstein,  
Christian Noyer,  
Ilmārs Rimšēvičs,  
Zdeněk Tůma,  
Stefan Ingves, Marko Kranjec,  
Mugur Constantin Isărescu

**Front row (left to right):**

Miguel Fernández Ordóñez,  
Ivan Šramko,  
Lucas D. Papademos,  
Jean-Claude Trichet,  
Michael C. Bonello,  
Athanasios Orphanides,  
Yves Mersch

Vítor Constâncio, Mario Draghi, Ivan Iskrov, Mervyn King, Guy Quaden and Sławomir Skrzypek were not present when the photograph was taken.

## ENLARGEMENT OF THE EUROPEAN UNION



## ENLARGEMENT OF THE EURO AREA 1999-2008





## 2 INSTITUTIONAL SETTING AND WORKINGS OF THE EURO AREA

*Macroeconomic policies are conducted in the euro area on the basis of a well-defined allocation of responsibilities. The competence for monetary policy has been assigned to the supranational level, i.e. the ECB. By contrast, economic policies largely remain within the remit of Member States while being subjected to coordination procedures. The Maastricht Treaty endowed the ECB/Eurosystem with the independence needed for conducting the single monetary policy and carrying out its other tasks. At the same time, the Treaty imposes upon the ECB a number of reporting requirements vis-à-vis the general public and its elected representatives, the European Parliament. Moreover, the ECB participates in a number of European meetings and regularly exchanges views with Community institutions.*

*The first decade of EMU has shown that this unprecedented institutional setting, of which the ECB is an integral part, is fundamentally sound. This is also recognised in the new Lisbon Treaty, which has left the institutional set-up essentially unchanged. However, important challenges remain. In particular, national policy-makers should live up to their respective responsibilities under the current setting, which would further improve the euro area's macroeconomic performance.*

*The chapter is structured as follows: Section 2.1 briefly reviews the euro area's institutional setting and some changes that have occurred over this decade, Section 2.2 looks at the ECB's interaction with other Community institutions and bodies, and Section 2.3 lists the procedural steps for euro area and EU enlargement.*

### 2.1 INSTITUTIONAL SETTING

The institutional setting for Economic and Monetary Union (EMU) introduced by the Maastricht Treaty specifies a clear division of responsibilities between the Community level and the national level. As a consequence of the introduction of the single currency, the competence for euro area monetary policy has been transferred to the Community level. In order to fulfil its primary objective of maintaining price stability, the Eurosystem has been given a high degree of independence from political influence. By contrast, economic policies (such as fiscal or structural policies) remain largely within the remit of the Member States, embedded within a European framework aimed at ensuring discipline. The main reason for this dichotomy is that, while monetary policy in a monetary union is indivisible by nature, economic policies need to take into account national characteristics and national institutional settings and therefore can be more efficiently conducted at national level. Moreover, leaving economic policies largely in the competence of national governments also allows for some degree of policy competition aimed at improving policy efficiency and emulating best practices.<sup>1</sup>

At the same time, the single currency is promoting greater economic integration of national economies, which is in turn increasing their interdependence (in particular, trade and capital flows have risen over the last ten years, see Chapter 5). Exceedingly decentralised and uncoordinated policy responses might be counter-productive by not taking enough account of growing interdependence. In particular, autonomous decision-making is likely to be less effective in coping with common economic shocks that affect most or all countries in broadly similar ways. Moreover, Member States must take into account potential spillover effects (i.e. policy decisions in one country might affect the others). In addition, the economic policies of Member States must be geared towards stability to ensure compatibility with the primary objective of the single monetary policy. This is all the more necessary as euro area members no longer have monetary and exchange rate policies

**Clear allocation of responsibilities**

<sup>1</sup> For a more detailed description of the current framework, see the article "The economic policy framework in EMU" in the November 2001 issue of the ECB Monthly Bulletin.

at their disposal and therefore must rely on other policies to foster competitiveness and adjust to shocks. These considerations provide a case for coordination in the field of economic policies. Such coordination may take place either by subjecting policies to a rules-based approach relying on “hard” laws or procedures or through a “soft” approach based on peer pressure or support among Member States and dialogue at the Community level.

### Three policy-making modes

The Treaty foresees three different modes for policy-making in the various fields of EMU: i) full transfer of competence to the Community level for monetary policy; ii) rules-based coordination for fiscal policy; iii) “soft” coordination for other economic policies. The following sections will look at each of these policy areas in turn.

### Institutional setting is sound

The main conclusion of this chapter is that the institutional setting of the euro area has provided an adequate framework for the functioning of EMU during the first ten years. The new Lisbon Treaty has left the EMU’s institutional arrangements essentially untouched, thus recognising that the framework is appropriate.<sup>2</sup>

## COMMUNITY LEVEL

### Central bank independence, accountability and transparency

Economic theory and historical examples from previous decades represent strong evidence that central bank independence is a precondition for achieving and maintaining price stability. Against this background, the multi-dimensional independence of the ECB is stipulated in the Treaty, which legitimises its independence.

### Towards central bank independence: a global trend

Over the last few decades, the evolution of monetary policy frameworks around the world has been characterised by a global trend towards central bank independence. As we review below, the latter is a multifaceted concept. More powers and autonomy require democratic legitimacy, which entails a high degree of transparency in the conduct of monetary policy, and intensive communication with the public. Behind this broad development was a radical change in the thinking of economists in the 1970s, which recognised the fundamental role of expectations in economic behaviour.

### Rationale for central bank independence

Central bank independence, i.e. insulating the central bank from political influence in its conduct of monetary policy, ensures the focus of monetary policy on price stability and thereby facilitates the anchoring of inflation and inflation expectations at low levels. Following the high inflation of the 1970s, the question arose as to why central banks allowed inflation to get out of hand, and how such a development could be prevented in the future. One key explanation which was put forward was that central banks lost control of inflation because of their lack of independence. In the absence of central bank independence, monetary policy cannot be credibly geared to price stability since it can at any time be exposed to political preferences to boost output in the short run at the expense of higher inflation in the longer run. The public will, however, understand this problem and expect higher inflation from the outset, so that the perceived short-term trade-off between inflation and output will be negated and a permanently higher inflation rate will ensue as the only certain outcome. The only way out of this dilemma is to delegate monetary policy to an independent central bank with a clear mandate to safeguard price stability.

2 The Lisbon Treaty was signed by EU Heads of State or Government on 13 December 2007. It amends the Treaty on European Union and the Treaty establishing the European Community and aims to make an enlarged European Union function more democratically, more transparently and more effectively. The Lisbon Treaty is scheduled to enter into force in 2009, following ratification by all Member States.

The economic rationale behind central bank independence has to be translated into a comprehensive and detailed legal framework. To ensure the necessary independence of the ECB/ESCB, the following dimensions of monetary policy independence can be derived from the Treaty.

The institutional independence of the ECB from any interference, including from governments, is guaranteed in Article 108 of the Treaty. This provision explicitly stipulates that, when exercising their powers, neither the ECB nor any member of its 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 Treaty further states that 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. The ECB's institutional independence is complemented by its own legislative powers and its advisory role as regards draft national and Community legislative provisions falling in its fields of competence.

The provisions of the Treaty ensure that the ECB disposes of all necessary competences and powers to achieve its mandate, thereby granting it functional independence. For example, the ECB has exclusive competence for monetary policy in the euro area. The ECB's full control over the monetary base is ensured by its monopoly on banknote issuing and the requirement that issuance of coins by the Member States is subject to the ECB's approval. Also, Article 101 of the Treaty shields the Eurosystem from pressures to grant monetary financing of public debt by prohibiting lending by the Eurosystem to the public sector.

Personal independence provides the members of the Governing Council with the necessary security of tenure and helps avoid any conflicts of interest. In this respect, the ESCB/ECB Statute protects the personal independence of the ECB decision-making bodies by stipulating relatively long fixed-term contracts and ruling out dismissal on the grounds of past policy conduct. A key consideration in this respect is to ensure that central bankers have significantly longer mandates than politicians, thus central bankers can look ahead over a longer horizon, focusing on medium-term considerations, while politicians have shorter-term objectives, in line with the election cycles.

Finally, financial independence, meaning the central bank's autonomy over its financial resources and income, is important in that it enables the central bank to effectively perform its tasks. In EMU this is ensured by the ECB having its own budget, independent from that of the EU, and the full subscription and payment of the ECB's capital by the national central banks of the Eurosystem.

In the Lisbon Treaty the ECB is specifically listed as one of the institutions of the Union. This change in the legal status of the ECB has no material impact on its position within the EU institutional setting, since the Lisbon Treaty does not amend any of the main institutional features of the ECB, such as its primary objective and tasks, its power to adopt legal acts as well as its own legal personality and independence.

The far-reaching independence granted to the ECB by the Treaty and the Statute must be adequately legitimised to be in line with the democratic fundamentals of the European society. It requires accountability to the general public and to democratically elected bodies. The democratic legitimacy of independent central banks is regulated differently in different democratic systems. Their mandates can also vary on the basis of the number of objectives they have to pursue.

Regarding the democratic legitimacy of the ECB/ESCB, three elements can be highlighted. First, the ratification of the Treaty and the amendments to the national central bank statutes by national

legislation is a major source of democratic legitimacy. Second, the appointment of the Governing Council members, including the Executive Board members of the ECB and the national central bank governors, by democratic institutions is also a significant element. Finally, the ECB has to render account of its policies.

As regards accountability, the ECB has to explain to the citizens and their representatives in the Parliament how it fulfilled its mandate. In particular, the ECB is required to address an annual report on its monetary policy and other activities to the European Parliament, the Council, the Commission and the European Council (for more information on these bodies, see section 2.2 below). The ECB has to present this report to the European Parliament and the Council. Moreover, the President of the ECB and the other members of the Executive Board may be heard by the competent committees of the European Parliament, either at the Parliament's or their own request (the ECB's reporting obligations vis-à-vis the European Parliament are explained in section 2.2).

Rendering account is made easier if a central bank has a clear mandate to fulfil. In the EU, the Treaty provides the ECB/ESCB with a clear primary objective to maintain price stability. If, by contrast, the central bank had to pursue several objectives at a time, it would be increasingly difficult to hold it accountable for the fulfilment of its mandate. Moreover, the Governing Council of the ECB has determined a quantified definition of the target to be achieved and a suitable and comprehensible strategy to be pursued, which limits discretionary decisions and personal influence on decision-making.

**Greater independence brings  
lower inflation**

The fact that the worldwide reduction of inflation and the successful anchoring of inflation expectations over the last two decades has coincided with a worldwide move towards central bank independence represents strong evidence that central bank independence is a precondition for achieving and maintaining price stability. This view is also supported by formal empirical evidence. A large number of studies have shown that across countries greater central bank independence is associated with lower average inflation.<sup>3</sup>

## **MONETARY POLICY**

The Maastricht Treaty assigns responsibility for the single monetary policy to the ECB and entrusts it with a primary objective, the maintenance of price stability. Without prejudice to this primary objective, monetary policy shall support the general economic policies of the Community. This arrangement is rooted in the principle – supported by empirical evidence and academic research and underpinned by a broad public consensus – that the maintenance of price stability is the best contribution that monetary policy can make to achieving the economic policy objectives of the Community, such as a high level of employment and sustainable and non-inflationary growth. The main features of the monetary policy framework and its implementation are dealt with in Chapter 3. The experience of the past ten years confirmed the soundness and robustness of this approach, as reflected in Chapter 4, which deals with the macroeconomic performance of the euro area.

**ECB's Governing Council sets  
monetary policy**

In the euro area, monetary policy decisions are taken by the Governing Council of the ECB, consisting of the six members of the ECB's Executive Board and the Governors of the national central banks of the countries that are part of the euro area, on the principle of "one person, one vote". As for the operations through which monetary policy decisions are implemented, the Governing Council, whenever this is possible and appropriate, conducts them through the national

<sup>3</sup> See P. Moutot, A. Jung and F. Mongelli (2008), "The workings of the Eurosystem. Monetary policy preparations and decision making", Annex 1, ECB Occasional Paper No 79, for a short review of the evidence and re-assessment.

central banks, in line with the principle of operational decentralisation<sup>4</sup> (for instance, while the minimum rate for bids during the weekly main refinancing operation is set centrally by the ECB, the tender operations themselves are implemented by the national central banks with their market counterparties).

A flexible exchange rate regime has been adopted for the euro. This means that the external value of the euro – like that of other major currencies, such as the US dollar – is determined in the markets. The exchange rate is not an instrument of economic policy. Indeed, it would not have made much sense to create the euro and then to subject its monetary policy to external rather than internal requirements. Price stability is an objective for both monetary and exchange rate policies, by implication there is no exchange rate target. When conducting its monetary policy, the ECB takes the exchange rate into account to the extent that it affects the economic situation and the outlook for price stability.

Flexible exchange rate  
regime for euro

## NATIONAL LEVEL

### Fiscal policy

Fiscal discipline is required for the smooth functioning of Monetary Union, as unsound fiscal policies may create expectations or lead to political pressures upon the central bank to accommodate higher inflation in order to alleviate the debt of the government sector or to keep interest rates low. The Treaty therefore contains several provisions to avoid such risks. A more detailed account of fiscal policies and their outcome is provided in Chapter 4.

Sound fiscal policies needed

First of all, the Treaty explicitly prohibits the financing of government deficits through central banks. It also stipulates that the government sector should not have privileged access to financial institutions. In addition, the Treaty's so-called "no bail-out clause" makes clear that neither the Community nor any Member State should be liable for commitments of another Member State.

Beyond that, the Treaty contains an obligation for Member States to avoid excessive deficits. For Member States that do not comply with the government deficit and debt ceilings defined in the Protocol on the Excessive Deficit Procedure (EDP) annexed to the Treaty, the procedure can ultimately lead to financial sanctions.

The fiscal framework was significantly enhanced in 1997 through the introduction of the Stability and Growth Pact<sup>5</sup> (SGP). The preventive arm of the SGP introduces a more concrete procedure of multilateral surveillance whereby euro area members submit a stability programme, while non-euro area members submit a convergence programme. These annual programmes present an overview of the economic and fiscal developments in each country, a medium-term objective for fiscal policy (MTO), and an adjustment path towards the MTO. The Council also can deliver an early warning recommendation. In addition, the SGP has clarified and streamlined the different steps and the timetable of the EDP through its corrective arm.

Fiscal policies coordinated  
through Stability and  
Growth Pact

As for the 'corrective arm', the reform of the SGP in 2005 introduced more flexibility into the procedures. In particular, the use of discretion in determining an excessive deficit was widened and

4 For an analysis of the principle of decentralisation and the difference to the subsidiarity principle, see Zilioli, ESZB-Satzung, Artikel 12, in von der Groeben-Schwarze hrgb., Kommentar zum Vertrag über die Europäische Union, 2003, 6. edition, pages 427-428 and Zilioli, Selmayr, The Law of the ECB, Hart publishing 2001, p. 70-71.

5 The Stability and Growth Pact, which was adopted in June 1997, consists of a European Council Resolution and Regulations No 1466/97 and No 1467/97. See also J. Stark, (2001), "The genesis of a pact", in: Brunila, A., M. Buti and D. Franco (eds.), The Stability and Growth Pact. The architecture of fiscal policy in EMU. Basingstoke: Palgrave.

procedural deadlines were extended. With regard to the “preventive arm”, the revised SGP also introduced increased discretion concerning the setting of and progress towards the MTO. Many observers, including the ECB, expressed concern that these changes would undermine confidence in the fiscal framework and the sustainability of public finances in the euro area members – and, overall, make it more complex and less transparent.

### Structural policies

The Treaty requires Member States to consider their economic policies “as a matter of common concern”. The Broad Economic Policy Guidelines (BEPGs) are the cornerstone of this set-up. The Treaty also establishes a multilateral surveillance framework for employment policies, including the adoption of Employment Guidelines. However, while the Council may issue recommendations to Member States that do not comply with the BEPGs, the Treaty does not foresee any enforcement or sanction mechanism.

Structural policies are an important part of the overall coordination of economic policies and are subject to a “soft” coordination approach, which relies mostly on peer pressure and support. As discussed in Chapter 4, highly flexible and competitive markets are necessary for the smooth functioning of EMU, as the countries can no longer resort to some of the pre-EMU adjustment mechanisms to restore their competitiveness (e.g. through currency devaluation). Economic policies aimed at the supply side of the economy need to take into account the specific conditions in each country and, therefore, only a “soft” coordination of such country-specific policies is feasible.

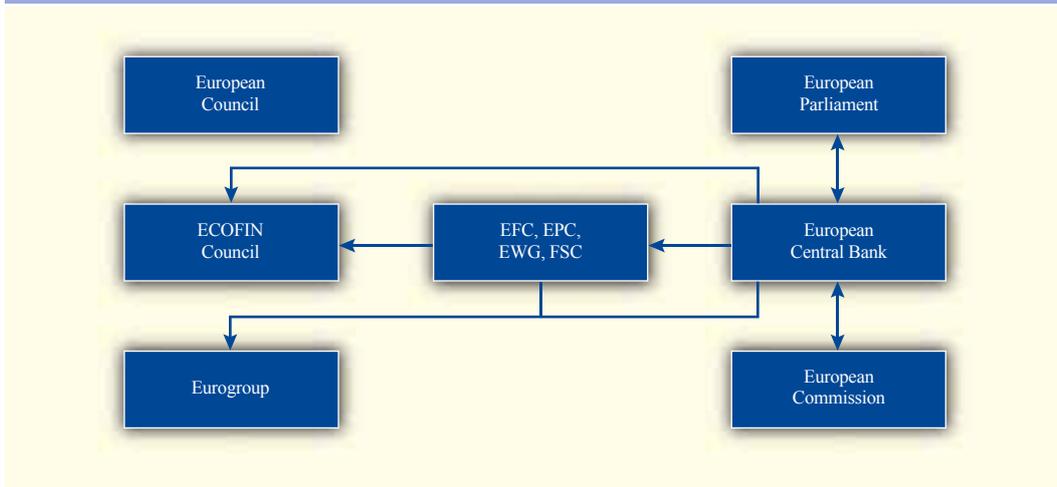
In March 2000, the Lisbon European Council refined this approach by adopting the so-called “Lisbon Strategy”, which set out an ambitious programme of structural reforms to enhance the European Union’s growth potential. The Strategy introduced two institutional innovations: (i) the “spring meetings” where the European Council is asked to provide political impetus to and guidance on economic policies and structural reforms; and (ii) a new “Open Method of Coordination” (a new form of governance in the EU) as a means of enhancing cooperation through the definition of ‘best practices’.

However, five years after its creation, the results of the Lisbon Strategy were rather mixed. Following a review carried out by a high-level group chaired by Wim Kok, the former Prime Minister of the Netherlands, the 2005 Spring European Council agreed to substantially modify the Lisbon Strategy. In particular, it refocused the Lisbon Strategy on growth and employment, and streamlined its governance with a view to increasing national ownership of structural reforms and, thereby, the political legitimacy of the whole process.

The 2005 Spring European Council also agreed to bring the BEPGs and the Employment Guidelines together into a single package, the Integrated Guidelines, in order to enhance their consistency. They have now been adopted for a three-year period, with annual updates as appropriate. Moreover, the large number of earlier reports were replaced by national reform programmes, which allow an annual assessment of progress achieved so far.

Given the large size of the euro area, divergences in the economic performance of its members are not surprising (see section 3 in Chapter 4 for a description of cross-country differentials in macroeconomic performance in the euro area). Similar observations can be made for other large currency areas, such as the United States. However, the fact that economic divergences in the euro area tend to be persistent is an indication that euro area economies are not sufficiently flexible. It is

Chart I ECB's relations with other Community institutions/bodies



therefore essential that governments remain committed to the objectives of the Lisbon Strategy in order to reap the benefits of EMU.

## 2.2 ECB'S INTERACTION WITH OTHER COMMUNITY INSTITUTIONS AND BODIES

The institutional setting of EMU that we just described requires more intensive interaction among Community/supranational institutions. This section complements the above considerations on the general principles underlying the EMU setting. In particular, we look here at the interaction of the ECB with key Community institutions.<sup>6</sup>

### RELATIONS WITH THE EUROPEAN PARLIAMENT

As already mentioned, as a counterpart to its independence, the ECB is transparent vis-à-vis the general public and is subject to extensive reporting requirements, in particular vis-à-vis the European Parliament. In this context, the President of the ECB and the other members of the Executive Board may be heard by the competent committees of the European Parliament, either at the Parliament's or their own request. In practice, the President of the ECB appears before the Committee on Economic and Monetary Affairs on a quarterly basis. The Annual Report of the ECB is presented to both the Committee on Economic and Monetary Affairs and the plenary of the European Parliament.

Moreover, going beyond the Treaty requirements, there are a number of other contacts between the ECB and the European Parliament, such as informal visits. The ECB has also agreed to reply to written questions by members of the European Parliament. To increase transparency, both the questions and answers are published in the Official Journal of the EU.

ECB has reporting obligations to European Parliament

<sup>6</sup> Note that the chart above illustrates only the interactions between the ECB and the other Community institutions/fora, not those among the latter. For a more comprehensive analysis, see also the article "The ECB's relation with institutions and bodies of the European Community" in the October 2000 issue of the ECB Monthly Bulletin.

This setting allows the ECB to be effectively held accountable to the EU's elected representatives and the public.

#### RELATIONS WITH THE ECOFIN COUNCIL AND ITS PREPARATORY COMMITTEES

ECB President may attend ECOFIN Council meetings

The ECOFIN Council, i.e. the Council meeting in composition of finance ministers, deals with economic and financial policy issues pertaining to the EU as a whole and (unlike the Eurogroup, see the following sub-section) can take formal decisions. The Treaty provides for the President of the ECB to attend Council meetings whenever the Council discusses matters relating to the objectives and tasks of the ECB/Eurosystem. The Treaty also provides for the President of the Council (de facto, the President of the Eurogroup) to participate in the meetings of the Governing Council without a right to vote.

The decisions of the ECOFIN Council are prepared by the Economic and Financial Committee (EFC), which brings together senior national representatives from finance ministries and central banks, as well as senior officials from the European Commission and the ECB. The EFC plays a key role in reviewing the economic and financial situation of the Member States and of the Community, and also coordinates EU positions in international fora. The Financial Services Committee (FSC) is involved in the preparation of ECOFIN decisions in the field of financial services and supervision. The ECB is also a member of the Economic Policy Committee (EPC), which plays a key role in preparing the ECOFIN Council's deliberations in the area of structural reforms.

#### RELATIONS WITH THE EUROGROUP

Dialogue within the Eurogroup ...

Economic governance in the euro area relies largely on the informal discussions taking place in the Eurogroup. This informal body, which was established through a Resolution of the Luxembourg European Council in December 1997, brings together on a monthly basis the finance ministers of the euro area. Moreover, the Commissioner for Economic and Monetary Affairs and the President of the ECB are also invited to attend.

In the Eurogroup, a frank and open exchange of views takes place among the key policy-makers of the euro area. These discussions allow the ECB to obtain first-hand information and to explain its policy decisions.

... has gained in importance

The Eurogroup has gained in importance over the last ten years. This is reflected in its agenda, which has expanded over time. While it mainly used to focus on fiscal policies, the Eurogroup now also addresses other policy issues, such as structural reforms, developments in the competitiveness of individual euro area countries, financial stability and exchange rate developments. The Eurogroup's informal role is now recognised in a Protocol annexed to the new Lisbon Treaty, which sets the aim of "developing ever-closer coordination of economic policies within the euro area".

#### RELATIONS WITH THE EUROPEAN COMMISSION

Close relations with the Commission

The European Commission assumes an important role in EMU's institutional setting. In particular, the Commission has the right of initiative to propose Community legislation for adoption by the European Parliament and the Council. It also plays a key role in monitoring the implementation of decisions and agreements reached at European level. The ECB is in regular contact with the Commission and exchanges views with Commission representatives in the context of European meetings. Moreover, the Commissioner for Economic and Monetary Affairs may participate in the

meetings of the Governing Council without the right to vote. Beyond these formal contacts, the ECB has established a number of informal working contacts with the Commission services.

## 2.3 ENLARGEMENT PROCESSES

### EU ENLARGEMENT

The first ten years of the euro coincided with an unprecedented expansion of the European Union. Ten new countries joined the Union on 1 May 2004 and a further two followed on 1 January 2007. This enlargement was in many respects the largest and most comprehensive in the history of the European Union. The total number of Member States increased from 15 to 27 and the total population went up by around 100 million to reach almost 500 million. At the same time, the economic impact of this growth has all in all been relatively muted. Total GDP increased by less than 10%, as per capita incomes of most new members were, at the time of accession, significantly lower than the EU average.

Enlargement is expected to continue in the years to come, although at a slower pace. Three countries have been granted candidate status: Turkey in 1999, Croatia in 2004 and the Former Yugoslav Republic of Macedonia in 2005. All other western Balkan countries are potential candidate countries and therefore have the prospect of eventual EU membership.

Given that all new Member States are expected to adopt the euro at some time, the Eurosystem has paid close attention to the EU's expansion and continues to do so. The General Council of the ECB regularly reviews economic, financial and monetary developments in the candidate and potential candidate countries. The Eurosystem has also established a close dialogue with central banks of countries that are preparing to join the EU. In particular, before previous rounds of accession, the Eurosystem organised together with national central banks a series of seminars on the EU accession process which helped the central banks of the accession countries to integrate smoothly into the ESCB. The ECB also has intensive contacts and exchanges of information, including through an annual high-level policy dialogue, with the central banks of the current candidate countries.

### EURO AREA ENLARGEMENT

The euro started out as the single currency of 11 Member States. Ten years later, it has become the currency of 15 Member States. There have already been three enlargements of the euro area, with Greece joining in 2001, Slovenia in 2007, and Cyprus and Malta in 2008. Further waves of euro area enlargement are expected in the future.

EU countries move towards euro adoption in accordance with a well-defined procedure consisting of a number of phases.

The first phase runs until a Member State joins the exchange rate mechanism ERM II. In this phase, the monetary and exchange rate policy of the country is subject to three key Treaty requirements. First, it is required to treat its exchange rate policies as a matter of common interest. Second, price stability should be pursued as the primary objective of monetary policy. Third, the country has to avoid excessive deficits (although financial sanctions under the excessive deficit procedure can only apply once a country has adopted the euro).

Recent sizeable enlargement  
of EU

Path to euro adoption ...

... joining ERM II ...

... staying within fluctuation bands ...

The second phase starts when a Member State joins ERM II. In this mechanism, a country's currency is subject to a regime of fixed, but adjustable, exchange rates, around a central parity against the euro and within a fluctuation band that has a standard width of 15% above and below the central rate. The mechanism is a direct successor to the original exchange rate mechanism that existed from 1979 until the introduction of the euro on 1 January 1999. The exchange rate mechanism plays a stabilising role, helps orient macroeconomic policies towards a sustainable path and contributes to anchoring inflation expectations. ERM II is a market test for Member States on their road towards euro adoption, as countries are expected to pursue stability-oriented policies in order to foster exchange rate stability and nominal convergence. In this way, participation in ERM II can be considered as a "training room" to qualify for euro adoption.

... fulfilling convergence criteria

The adoption of the euro, which represents the third phase, only starts after a country has fulfilled all the so-called convergence criteria on a sustainable basis (see also section 4.4). These criteria are laid down in the Maastricht Treaty and specified further in a Protocol annexed to it. They are intended to ensure the sustainable achievement of nominal convergence in price developments, long-term interest rates and government deficit and debt. Moreover, a Member State is expected to have participated for a period of two years in ERM II within the normal fluctuation bands without having experienced severe tensions. During this period, the country in question is required to bring its national legislation (in particular, the legislation concerning the statute of the respective central bank) fully in line with the Treaty and the Statute of the ESCB.

The decision whether a Member State has reached the necessary degree of sustainable convergence to adopt the euro is taken by the ECOFIN Council, following a discussion by Heads of State or Government. The decision is based on the Convergence Reports prepared by the ECB and the European Commission, an opinion of the European Parliament and a proposal from the European Commission. Moreover, the ECOFIN Council adopts the necessary regulations for the introduction of the euro in a new member country, including a regulation fixing the irrevocable conversion rate between the respective national currency and the euro.

Overall, the EU has defined a clear-cut procedure which foresees the eventual adoption of the euro as the endpoint of a structured convergence process within a multilateral framework. As a consequence, unilateral official euroisation would not be compatible with the Treaty.

Entry into the euro area has a number of operational implications and requires intensive technical preparations, especially in respect of the cash changeover, the instruments needed for monetary policy implementation and participation in euro market infrastructures for the handling of payments and collateral transactions. The Eurosystem has also launched various information campaigns in order to familiarise cash handlers and the general public with the visual appearance and security features of the euro banknotes and coins (for instance, through the distribution of information leaflets to households or the organisation of conferences and seminars for the business community). Upon euro adoption, national central banks become members of the Eurosystem and their Governors join the Governing Council.

## 2.4 CONCLUSIONS

The institutional setting introduced by the Maastricht Treaty is unique. It combines a centralised monetary policy with decentralised fiscal and structural policies. In addition to this clear allocation of responsibilities, it provides appropriate coordination procedures which take account of the

increased interdependence among euro area members following the introduction of the single currency.

Experience from the first ten years of EMU suggests that this setting works well. This is also acknowledged by the new Lisbon Treaty, which has left this set-up in substance unchanged. At the same time, not all policy-makers have always delivered on their commitments and agreements reached at the Community level. Therefore, if there is one lesson that may guide EMU's second decade, it is that all policy-makers should live up to their respective responsibilities under the EMU setting. This will make EMU a continued success.





## 3 THE ECB'S MONETARY POLICY STRATEGY AND ITS IMPLEMENTATION

*To fulfil its mandate to maintain price stability for the euro area, the Governing Council has relied on its publicly announced monetary policy strategy from the very outset of Monetary Union. All in all, over the past ten years, the strategy has served the ECB well. Monetary policy decisions have securely anchored longer-term inflation expectations at levels consistent with price stability. At the same time, the flexible design of, and the broad range of instruments and procedures within, the Eurosystem's operational framework for the implementation of monetary policy has proved effective and resilient, also in times of financial distress.*

*The chapter is structured as follows: Section 3.1 briefly reviews the ECB's monetary policy strategy. In particular, it shows how the economic and monetary analyses within the two-pillar framework for the Governing Council's assessment of the risks to price stability have evolved over the past decade. Section 3.2 illustrates how the single monetary policy has been conducted in practice and how it has managed successfully to guide inflation expectations in an environment of constantly changing economic and financial conditions and challenges. Looking into the conduct of monetary policy in greater detail, Section 3.2 distinguishes five main phases, namely the transition to Monetary Union (mid-1998 to mid-1999), monetary policy tightening to contain inflationary pressures (mid-1999 to end-2000), downward adjustments to key ECB interest rates (early 2001 to mid-2003), maintaining the key ECB interest rates unchanged (mid-2003 to end-2005) and withdrawal of monetary policy accommodation (since the end of 2005). Section 3.3 describes the operational instruments and procedures used by the ECB to implement monetary policy decisions. Section 3.4 concludes with some lessons and ways forward.*

### 3.1 THE ECB'S MONETARY POLICY STRATEGY

#### WHY PRICE STABILITY? WHAT ARE THE BENEFITS?

The Treaty on European Union (also referred to as the “Maastricht Treaty”) establishes a clear hierarchy of objectives for the Eurosystem by assigning overriding importance to price stability. This choice is based on both unambiguous historical evidence and economic theory. Price stability supports higher living standards through various channels.

Price stability protects the real value of income and wealth, while unexpected inflation inevitably leads to unintended and arbitrary redistribution. Price stability is to the benefit of, in particular, the most vulnerable groups in the society. These groups have a relatively higher share of their savings invested in cash and savings accounts, the real value of which is easily eroded by inflation. Typically, their access to financial markets is rather limited, leaving them with little room to evade the “inflation tax”.<sup>1</sup> In this respect, pensioners, who have to live on their pension entitlements and the savings accumulated during their working life, constitute a group that is particularly vulnerable to inflation. Price stability thus also contributes to social cohesion.

Moreover, in an environment of stable prices, it is easier for people to disentangle changes in relative prices (i.e. movements in prices of any individual good or service) from changes in the general price level. This means that people can fully rely on the signal and information function of prices of any individual good or service. In such an environment, people know that any movement of prices is related to changes in the “relative scarcity” of the individual goods and services as a

Price stability as the primary objective

Benefits of price stability

<sup>1</sup> For a more detailed discussion, see W. Easterly and S. Fischer, “Inflation and the Poor”, World Bank Policy Research Working Paper No 2335, 2000.

result of changes in the supply of, and demand for, those goods and services. In this sense, price stability makes it easier to compare prices and, therefore, to make better informed decisions on consumption and investment. This contributes to a smooth and efficient functioning of markets.

Price stability also contributes to lower levels of both nominal and real interest rates. For instance, inflation erodes the real value of nominal assets and, in an inflationary environment, lenders typically require an inflation risk premium to compensate them for inflation risks associated with their investment. By contrast, lenders do not require such a risk premium in an environment of price stability. By reducing inflation risk premia, price stability results in lower levels of real interest rates, thereby making more investment projects profitable. In this respect, lower interest rates contribute to higher levels of employment and economic growth.

Furthermore, price stability is the best – and, ultimately, the only – contribution that a credible monetary policy can make to economic growth, job creation and social cohesion. This reflects the fact that a policy-maker who controls only one instrument cannot meet, and be held accountable for the fulfilment of, more than one objective. The pursuit of additional objectives would risk overburdening monetary policy, and would ultimately result in higher inflation and higher unemployment. Over the longer term, monetary policy can only influence the price level in the economy; it cannot exert a lasting impact on economic activity. This general principle is referred to as the “long-run neutrality of money”. It is against this background that the Treaty provides for a clear and efficient allocation of responsibilities, with monetary policy being assigned the primary objective of maintaining price stability.

Recent evidence suggests that the relationship between inflation and growth might even be negative in the long run, with a permanent rise in inflation leading to a net loss of real income.<sup>2</sup> This reinforces the case for assigning central banks clear responsibility for keeping prices stable. In this way, monetary policy not only minimises the costs of inflation, but also helps to maximise the long-run productive potential of the economy.

## ELEMENTS OF THE MONETARY POLICY STRATEGY

When the monetary policy strategy was adopted and announced by the Governing Council in October 1998, i.e. in good time before the start of EMU, one of the key questions was whether the strategy would be able to embrace all circumstances that the newly formed euro area might face at inception and thereafter. It is therefore appropriate first to briefly review the main elements of, and the rationale behind, the strategy.

The monetary policy strategy was developed on the basis of extensive preparatory work carried out by the European Monetary Institute (the predecessor of the ECB). The strategy ensures a consistent and systematic approach to the conduct of monetary policy. It consists of two main components: first, a quantitative definition of the ECB’s primary objective of price stability and, second, a two-pillar framework as the organising principle for the analysis underlying the assessment of the outlook for price developments. From the very beginning, the ECB’s monetary policy strategy provided a solid basis for the conduct and communication of monetary policy. In 2003, in the context of an overall evaluation of its strategy, the Governing Council confirmed the main elements of the strategy.

2 See the article entitled “Price stability and growth” in the May 2008 issue of the Monthly Bulletin.

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

While the Treaty clearly identifies price stability as the primary objective of monetary policy, it does not give a precise, quantitative definition of this objective. To provide a clear yardstick against which the public can hold the ECB accountable and with a view to anchoring longer-term inflation expectations, the Governing Council adopted a quantitative definition of price stability in 1998, stating that “price stability shall be defined as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2%. Price stability is to be maintained over the medium term.” In addition, following a thorough evaluation of the monetary policy strategy in 2003, the Governing Council clarified that, within this definition, it aims to keep HICP inflation “below, but close to, 2%”. Such an approach is sufficient to hedge against the risks of both very low inflation and deflation.

When adopting the quantitative definition of price stability in 1998, the Governing Council took a number of specific features of the euro area into account:

- first of all, an area-wide consumer price index – in this case, the HICP (see Box 1 in Chapter 8) – is the natural choice for the ECB as a reference for price stability, as it focuses on monetary transactions in the euro area;
- second, the definition focuses on the euro area as a whole, reflecting the fact that, within a monetary union, monetary policy cannot address country-specific issues;
- third, the definition makes clear that inflation above 2% is not consistent with price stability, the primary objective of the ECB. However, it also implies that very low inflation rates, and especially deflation, are not consistent with price stability either.

In addition, the definition of price stability stresses the medium-term orientation of the ECB's monetary policy. Since monetary policy can affect price developments only with significant and variable time lags, and only to an extent that is uncertain, it is impossible for a central bank to maintain a specific pre-defined inflation rate 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 focus on the medium term. This helps to avoid excessive activism and the introduction of unnecessary volatility into the real economy. As a result, some short-term volatility in inflation rates is inevitable.

### THE TWO PILLARS OF THE ECB'S MONETARY POLICY STRATEGY

The ECB's overall approach to analysing and evaluating the information that is relevant for assessing the risks to price stability in a forward-looking manner is based on two analytical perspectives, often referred to as the two pillars. This two-pillar structure is the organising principle for the internal analysis underlying the ECB's monetary policy deliberations and decisions, as well as for its communication to the financial markets and general public.

The economic analysis aims to identify risks to price stability at short to medium-term horizons. To this end, it attempts to identify the economic shocks relevant to understanding price developments and output trends over the short to medium-term horizon, notably in the context of business cycle analysis. It scrutinises a wide range of economic activity, price and cost indicators, primarily at the aggregate euro area level but also at sectoral and country levels. All these factors help to assess the dynamics of real activity and the likely development of prices from the perspective of the interplay between supply

Annual HICP inflation below,  
but close to, 2% ...

... over the medium term

Two-pillar framework

Economic analysis

and demand in the goods, services and factor markets at shorter horizons. A key element in the economic analysis is the conduct of regular exercises projecting the main macroeconomic variables in the euro area (see Box 1). To take appropriate policy 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.

#### Box 1

### MODELLING THE EURO AREA ECONOMY

Models of the economy are an important tool used for economic analysis in many central banks. These models are often described as “structural” because they aim to capture the key causal determinants of economic decisions on consumption, investment, etc. The models are validated empirically, or “estimated”, by matching their implications for some macroeconomic variables with observed past outcomes. Once estimated, the models can be used as laboratory tools to answer various economic questions: they can produce forecasts of future economic conditions; they help to provide a quantitative interpretation of the impact of particular economic events – e.g. changes in wage determination or fiscal measures – on the economy as a whole; and they can be used to assess how economic outcomes are affected by policy actions.

Since early 1999, macroeconomic models at the ECB have undergone substantial further development. The first model to describe the euro area economy at the aggregate level was the area-wide model (AWM).<sup>1</sup> Developing the AWM posed special challenges, because of the novel conditions created by EMU. For example, the empirical validation of the model was necessarily based on pre-Monetary Union data, even if it was reasonable to expect that the Monetary Union might represent a change in the structure of the euro area economy. In addition, area-wide data were not readily available from national statistical offices. They had to be created through a process of aggregating national data, which occasionally required ad hoc assumptions. In spite of these difficulties, the AWM has proved to serve well as a tool for the quantitative analysis of euro area macroeconomic developments. Its area-wide approach has been followed in most subsequent models constructed at the ECB.<sup>2</sup>

Over the years, the structure of the AWM has been improved in a number of directions. At the same time, developments in the academic literature led to a more radical rethinking of the basic requirements to be satisfied by an economic model. The prototype of a new generation of economic models, which has subsequently proved to be useful in many central banks, was developed at the ECB: the Smets and Wouters model of the euro area.<sup>3</sup> This model is characterised by many innovative features. For example, it provides firm and household-level explanations (or “micro-foundations”) for observed aggregate outcomes, such as the sluggish adjustment of prices to exogenous developments. Households’ and firms’ decisions are allowed to react to changes in the future economic outlook, rather than only to past developments. Finally, the model is estimated, taking all relevant information jointly into account, and is therefore able to compete with purely statistical tools in terms of short-term forecasting.

1 See G. Fagan, J. Henry and R. Mestre, “An area-wide model (AWM) for the euro area”, *Economic Modelling* 22, 2005, pp. 39-59.

2 Alongside the AWM, a multi-country model (MCM) was also developed early on at the ECB, in cooperation with the NCBs. The structure of the MCM is very similar to that of the AWM, but economic relationships are estimated at the national, rather than at the area-wide, level. The model can thus provide an important robustness check for AWM-based results.

3 See F. Smets and R. Wouters, “An Estimated Dynamic Stochastic General Equilibrium Model of the Euro Area”, *Journal of the European Economic Association* 1, 2003, pp. 1123-1175.

More recently, the structure of the Smets and Wouters model has been extended further in the Christiano, Motto and Rostagno model, which devotes special attention to the role of monetary and financial variables in the structure of the economy.<sup>4</sup> This model includes an explicit banking sector that provides intermediation services between borrowers and lenders, and generates a nontrivial role for monetary aggregates in the economy. It also allows for an endogenous pass-through of the policy interest rate to the loan rates charged to firms, which incorporate a premium to compensate banks for the borrowers' risk of default.

Finally, a new, micro-founded version of the AWM, or a new AWM (NAWM), has been developed to replace the AWM as the main tool underlying the macroeconomic projection exercises.<sup>5</sup> Compared with previously mentioned models, the NAWM includes open-economy features to allow for the conditioning of the projections on assumptions regarding, inter alia, external developments. The NAWM is particularly suited for conducting scenario analysis and assessing forecast uncertainty. The version of the NAWM used in the projections is complemented by a more detailed, but calibrated version for addressing a broader range of policy questions.

Mathematical models of the economy have played an important supporting role in the quantitative assessment of current economic and monetary conditions in the euro area. Nevertheless, all these models remain highly stylised along some dimensions. A more satisfactory treatment of fiscal policy and a richer labour market structure are some of the avenues along which existing models are being extended. In any case, policy simulations in structural models can only represent one of the many elements taken into account by the Governing Council in its overall assessment of the outlook for price developments in the euro area.

4 See L. Christiano, R. Motto and M. Rostagno, "The Great Depression and the Friedman-Schwartz Hypothesis," *Journal of Money, Credit and Banking* 35(6), December 2003, and L. Christiano, R. Motto and M. Rostagno, "Shocks, Structures or Policies? The EA and the US after 2001", *Journal of Economic Dynamics and Control*, forthcoming.

5 See K. Christoffel, G. Coenen and A. Warne, "The New Area-Wide Model of the Euro Area: Specification, Estimation Results and Properties", mimeo, June 2007, and G. Coenen, P. McAdam and R. Straub, "Tax Reform and Labour-Market Performance in the Euro Area: A Simulation-Based Analysis Using the New Area-Wide Model", *Journal of Economic Dynamics and Control*, forthcoming.

The monetary analysis aims at identifying risks to price stability at medium to longer horizons. In this context, monetary and credit developments, and their determinants, play a distinct role, given that monetary growth and inflation are closely related over the longer term (see Chart 1). This reflects the fundamental economic principle that, over the longer term, inflation is a monetary phenomenon. In particular, assigning a prominent role to money safeguards the medium-term orientation of the ECB's monetary policy. The chart demonstrates the close coherence between the low-frequency components of inflation and monetary growth, with monetary dynamics leading (and thus potentially helping to predict) developments in inflation.

In fact, monetary analysis draws on a broad set of monetary, financial and economic information using a wide range of complementary tools and techniques, which – along with the use of informed judgement – enables the real-time identification of the underlying trend in monetary developments and the assessment of its implications for the risks to price stability. In order to signal its commitment to monetary analysis in the context of its strategy and to provide a benchmark for the assessment of monetary developments, the ECB announced a reference value of 4½% for the annual growth rate of the broad monetary aggregate M3 in December 1998.<sup>3</sup> A protracted monetary expansion above

3 This aggregate comprises currency in circulation, overnight deposits, deposits with an agreed maturity of up to and including two years and deposits redeemable at notice of up to and including three months plus repurchase agreements, money market fund shares and units, as well as debt securities with a maturity of up to and including two years.

Monetary analysis ...

... draws on a broad set of information ...

... and has evolved over time

this benchmark points to upside risks to price stability. The choice of M3 was based on the evidence that this monetary aggregate exhibits a close relationship with the price level. At the same time, it was made clear from the very beginning that monetary policy would not react mechanically to deviations of M3 growth from the reference value.

However, it is important to note that the tools used for the identification of risks to price stability have evolved and improved over time, in the light of the challenges posed to monetary analysis by various developments, notably the rapid pace of financial innovation. Confronted with the unrelenting need to improve its analytical tools for identifying risks to price stability, the Governing Council decided in 2007 to further enhance its monetary analysis along four avenues:

- First, money demand models are being refined and extended in order to improve the understanding of the behaviour of monetary aggregates over time and across sectors.
- Second, the robustness of money-based inflation risk indicators is being improved so as to develop further their use as a guide to policy decisions aimed at the maintenance of price stability.
- Third, structural models that embody an active role for money and credit in the determination of inflation dynamics are being developed and refined in support of the assessment of monetary developments.
- Finally, it is important to deepen further the analytical framework to support the cross-checking of information and analysis stemming from the monetary and economic analyses.

Cross-checking ensures consistency

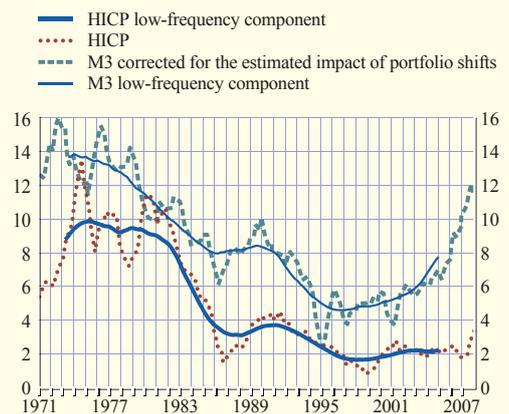
Overall, the two-pillar framework enhances the robustness of the Governing Council's monetary policy assessment with respect to both data and model uncertainty. In particular, all complementarities between the two pillars are exploited. This is the best way to ensure that all the relevant information for assessing risks to price stability is used in a consistent and efficient manner. The regular cross-checking of the outcome of the economic analysis with that of the monetary analysis ensures that a consistent overall assessment is provided, where information pertaining to both shorter and longer-term horizons is taken into account. Thus, it reduces the risk of policy errors caused by an over-reliance on a single indicator, forecast or model. Chart 2 summarises the key elements of the two-pillar approach and its role in policy-making.

Innovative and robust approach

After almost ten years of practical experience, the ECB's strategy has provided a reliable and robust framework for assessing risks to price stability and for effectively communicating the orientation of

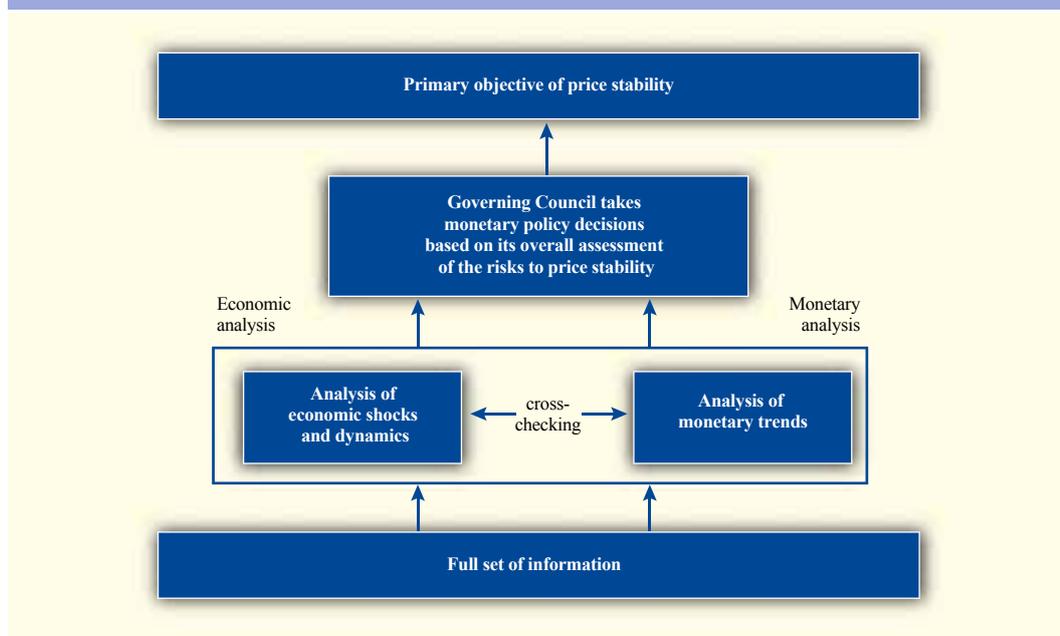
Chart 1 Relationship between the HICP and M3 in the euro area

(annual rates of growth, low-frequency component reflects periodicity > 10 years)



Notes: Low-frequency components derived from a symmetric fixed-length Christiano-Fitzgerald band-pass filter applied to the annualised quarter-on-quarter rates of growth. The peak of money growth leads inflation by eight to twelve quarters.

Chart 2 The two pillars of the ECB's monetary policy strategy



monetary policy to financial markets and the public. A clear sign of the appropriateness of the ECB's monetary policy strategy is the fact that there has been no need to modify its key elements. In recent years, a number of elements of the ECB's strategy have been included in the monetary policy frameworks of other central banks. Orientation to the medium term has become increasingly popular among inflation-targeting central banks, which have increasingly recognised the need for a more flexible policy horizon.

Similarly, the all-encompassing nature of the two-pillar framework is gaining attractiveness, because of its ability to integrate all relevant model-based, conjunctural and judgmental information into a single framework. Moreover, its explicit monetary pillar guarantees that the ECB's monetary policy is oriented to the medium term. It also ensures that the ECB develops its expertise in monetary and credit matters further. The close link between monetary developments and evolving imbalances in credit and asset markets implies that monetary analysis makes it possible to detect such imbalances at an early stage and to respond to the implied risk to price stability in a timely and forward-looking manner. In this respect, monetary analysis has proven to be a particularly valuable asset in times of financial market stress.

### 3.2 THE CONDUCT OF MONETARY POLICY IN THE EURO AREA AND ITS PERFORMANCE IN TERMS OF PRICE STABILITY<sup>4</sup>

This section reviews the track record of the single monetary policy since its inception in January 1999. To help present the stance of the single monetary policy (see Chart 3) in the context of changing circumstances and challenges, it is useful to distinguish five phases.

#### THE CONDUCT OF MONETARY POLICY

##### PHASE I – THE TRANSITION TO MONETARY UNION (MID-1998 TO MID-1999)

The Eurosystem acquired responsibility for the single monetary policy at a time when inflation rates in the euro area were rather low and the outlook for price developments was favourable (see Chart 4). At the same time, economic activity continued to expand in an environment of very low interest rates (see Charts 5 and 6), with the conditions for sustained growth remaining in place. However, during 1998, the ripples of the financial crises in Asia in 1997 and Russia in August 1998, together with the near collapse of the LTCM hedge fund in September 1998, caused high volatility in financial markets and considerable swings in investor confidence. Following these long-lasting tensions in financial markets, the prospects for economic growth in the euro area became clouded by a very high level of uncertainty, leading not only to some downward revisions to expectations of growth for 1998 as a whole, but also to lower projections for growth in 1999.

In the course of 1998, the focus of monetary policy in the euro area countries gradually shifted from a national to an area-wide perspective. Against the background of a favourable outlook for price stability, the convergence process took place through gradual reductions of official interest rates towards the lowest levels prevailing in the soon-to-be euro area. This convergence process accelerated in the last few months of 1998. It culminated on 3 December 1998 when all the NCBs in the euro area lowered their key central bank interest rates to 3% in a coordinated move (with the

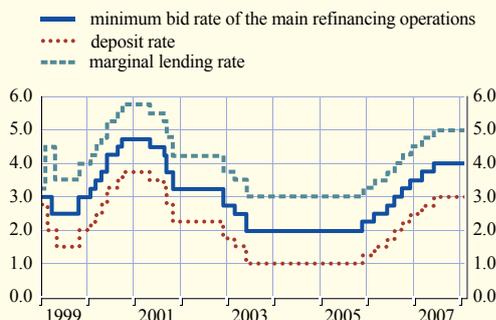
Favourable price and uncertain growth prospects ...

... led to monetary easing on the eve of EMU

4 All data references regarding real GDP growth and HICP inflation reflect revised data, as available on the cut-off date of this report (31 March 2008). The use of updated revised data, rather than real-time data available at the time monetary policy decisions were taken, does not change the line of reasoning underlying the monetary policy deliberations and decisions presented in this section.

Chart 3 Key ECB interest rates since January 1999

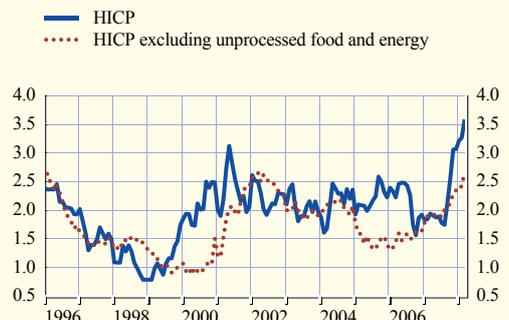
(percentages per annum)



Source: ECB.  
Note: The rate for the main refinancing operation refers, for operations settled before 28 June 2000, to the rate applicable to fixed rate tenders. For operations settled after that date, the rate is the minimum bid rate applicable to variable rate tenders.

Chart 4 HICP in the euro area

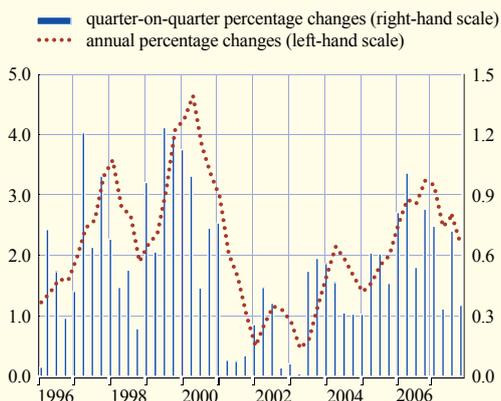
(annual percentage changes)



Source: Eurostat.

Chart 5 Real euro area GDP

(percentage changes)



Source: Eurostat and ECB calculations.

Chart 6 Nominal short and long-term interest rates in the euro area

(percentages per annum)



Sources: NCBs, Global Financial data, BIS, Reuters and ECB.

exception of the Banca d'Italia, which reduced its discount rate to 3.5%). This coordinated move on interest rates was to be seen as a de facto decision about the level of interest rates with which the Eurosystem would start Stage Three of EMU – as such, it was the de facto start of Monetary Union in Europe.

In early 1999 the Governing Council was faced with some conflicting signals from its economic and monetary analyses. On the one hand, it became increasingly clear that, on balance, the risks to price stability over the medium term were mainly on the downside. Inflation rates were very low by historical standards and significantly below the ceiling of the ECB's definition of price stability amidst emerging signs of a strong economic slowdown. On the other hand, after a protracted decline to levels below USD 10 per barrel at the turn of 1998/99, oil prices started rising again as from mid-

With risks to price stability  
on the downside ...

Chart 7 Brent crude oil prices

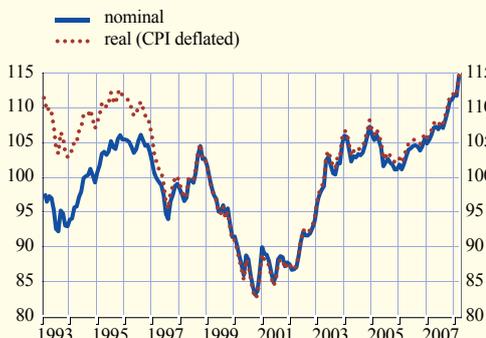
(US dollars per barrel)



Sources: IMF and ECB.

Chart 8 Euro nominal and real effective exchange rate

(monthly data; index calculated against the currencies of 22 main trading partners; 1999=100)



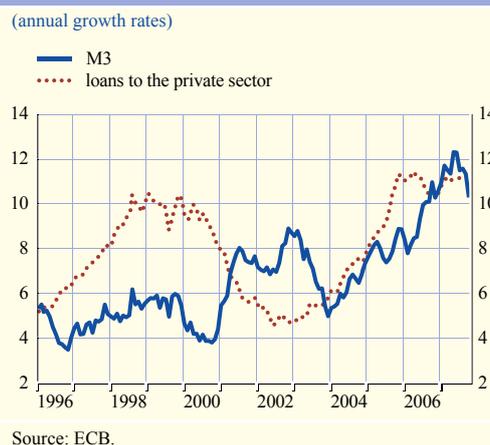
Source: ECB.

Note: The weights used for aggregating the pre-1999 "theoretical" euro exchange rates are based on the share of each euro area country in total manufacturing trade of the euro area vis-à-vis non-euro area countries (see Appendix II.6 in ECB Occasional Paper No 2, 2002).

February 1999 (see Chart 7). Moreover, in the first few months of 1999, the euro depreciated in effective terms (see Chart 8). Both factors had the potential to exert upward pressure on prices.

The growth rate of M3 rose from levels close to the reference value – to levels well above 5%, while loans to the private sector continued to grow rapidly at around 10% (see Chart 9). However, given the relatively modest deviation from the reference value and the uncertainties surrounding the analysis of monetary developments at that time (associated with the statistical changes necessitated by the transition to Monetary Union), higher headline M3 growth was not necessarily seen as reflective of the underlying rate of monetary expansion. As a result, the Governing Council did not interpret the signals coming from the monetary analysis as implying upward risks to price stability over medium to longer horizons.

**Chart 9 M3 and loans to the private sector**



... key ECB rates were lowered in April 1999

On the basis of this overall picture, the Governing Council reduced the fixed rate in the Eurosystem's main refinancing operations by 50 basis points on 8 April 1999, from 3.0% to 2.5%. Lowering the key ECB interest rates was seen as a precautionary measure to preserve price stability over the medium term and thereby to better exploit the growth potential of the euro area economy.

Increasing price pressures ...

**PHASE 2 – RAISING RATES TO CONTAIN INFLATIONARY PRESSURES (MID-1999 TO END-2000)**

Over this period, sharp increases in oil prices and a general rise in import prices continued to exert upward pressure on prices in the short term. By the end of 2000, oil and import prices had risen to levels not seen since the beginning of the 1990s. As these increases were larger and lasted longer than previously foreseen, the risks of indirect and second-round effects on consumer price inflation via wage-setting rose significantly in the context of robust economic growth. These concerns were compounded by the development of the euro exchange rate. Its trend depreciation continued over this period, gaining momentum in, especially, the second half of 2000 when it moved further out of line with the sound fundamentals of the euro area. As a result, the balance of risks to price stability over the medium term was shifted upwards.

... in an environment of rapid economic growth ...

Economic activity in the euro area expanded very rapidly in early 2000 and was set to continue along this path amidst favourable external conditions. It was the strong dynamism of the world economy in the first half of 2000, in particular, that generated optimism in investor sentiment, especially in the sectors of the “new economy”. This positive sentiment was reflected in soaring stock market indices across major economies, including the euro area, with a peak in the first half of 2000.

... and protracted monetary expansion ...

As regards the monetary analysis, a protracted monetary expansion above the reference value was increasingly pointing to upside risks to price stability at medium to longer-term horizons over the course of 1999 and in early 2000. Notwithstanding a gradual slowdown during the summer of 2000, available data continued to confirm risks of upward inflationary pressures in an

environment of still robust economic growth. Overall, with the exception of the first few months of 1999, this signal was broadly consistent with that derived from the economic analysis.

Against this background of increasing inflationary pressures, it became clear that the downside risks to price stability identified at the time of the reduction of the key ECB interest rates in April 1999 no longer prevailed. With the ECB's economic and monetary analyses both pointing to upside risks to price stability, the Governing Council raised the key ECB interest rates by a total of 225 basis points in a series of interest rate hikes between November 1999 and October 2000, bringing the minimum bid rate in the Eurosystem's main refinancing operations to a level of 4.75% in October 2000.

... led to higher ECB rates  
between November 1999  
and October 2000

### PHASE 3 – DOWNWARD ADJUSTMENTS TO KEY ECB INTEREST RATES (EARLY 2001 TO MID-2003)

In the course of this period, the Governing Council lowered the key ECB interest rates by a total of 275 basis points, with the minimum bid rate in the main refinancing operations of the Eurosystem reaching a historically low level of 2% in June 2003. This is the lowest level of interest rates seen in Europe since the Second World War. The decisions to adjust policy rates downwards were in line with the aim of keeping HICP inflation rates below, but close to, 2% over the medium term. By following a policy of lowering interest rates, the Governing Council responded to a continued decline in inflationary pressures, which had been triggered by deteriorating prospects for economic growth in the wake of severe shocks that hit the world economy and global financial markets. Most prominently, the terrorist attacks in the United States on 11 September 2001 increased the degree of economic uncertainty and undermined confidence. This had the potential not only to reinforce the already prevailing downward trend in economic activity, but also to disrupt the functioning of financial markets.<sup>5</sup>

Key ECB rates reduced to  
historically low levels

As regards price developments, annual HICP inflation rose further in 2000 and the first half of 2001, despite a marked fall in oil prices and a significant appreciation of the euro exchange rate against all major currencies. The appreciation of the euro took place after concerted central bank interventions in the foreign exchange market in September and November 2000. The annual rate of HICP inflation, which had stood at 2.0% in January 2001, rose to a peak of 3.1% in May 2001. This increase was mainly due to substantial rises in energy and unprocessed food prices related to the outbreak of animal diseases in a number of euro area countries. These price increases implied upward risks to price stability over the medium term. This was also reflected in the Eurosystem/ECB staff macroeconomic projections for HICP inflation, which were revised significantly upwards at the time.

Price pressures receded ...

However, the concerns about second-round effects gradually dissipated over time as the outlook for the euro area economy continued to deteriorate, thereby pointing to some moderation in inflationary pressure from domestic demand and lower risks for price stability from wages. In fact, towards the end of 2001, short-term pressures abated and annual HICP inflation declined. Overall, average annual HICP inflation stood at 2.3% and 2.2% in 2001 and 2002 respectively, compared with 2.1% in 2000. This picture remained broadly unchanged in the first half of 2003 when HICP inflation remained above 2%. However, the subdued pace of economic activity and the significant appreciation of the euro since spring 2002 were expected to dampen inflationary pressures. In fact, there were reasons in June 2003 to expect that annual HICP inflation would reach levels comfortably

<sup>5</sup> Against this background, the Governing Council decided on 17 September 2001 to reduce the key ECB interest rates by 50 basis points. This decision was taken in concert with an equivalent decision by the Federal Open Market Committee of the US Federal Reserve System, in order to promptly respond to exceptional circumstances in view of this shock.

... in response to  
decelerating growth ...

below 2% over the medium term. This overall picture was also reflected in the June 2003 Eurosystem staff macroeconomic projections and in the forecasts of other international institutions produced in the second quarter of 2003.

Following some first indications since the end 2000 that the impact of the rise in oil prices might have contributed to an economic slowdown in the euro area, economic activity there moderated in the course of 2001. In the aftermath of the terrorist attacks of 11 September, it became increasingly clear that the economic slowdown in the euro area would be more protracted than previously expected. External demand was expected to decline further and the high levels of uncertainty generated by the terrorist attacks were considered likely to delay the recovery in domestic demand. However, while the beginning of 2002 saw a moderate economic recovery in the euro area, the recovery lost momentum in the course of the year. Renewed turbulence in the financial markets over the summer and heightened geopolitical tensions in the second half of the year, with adverse effects on oil prices and confidence, were the main drivers behind this development.

Overall, economic growth in the euro area was rather weak in 2002, with annual real GDP rising by only 0.9%, compared with 1.9% in 2001, thus remaining below potential in both 2001 and 2002. This performance did not change fundamentally in 2003, with real GDP growth in the first half of the year stagnating in the wake of both the escalation of geopolitical tensions related to the situation in Iraq and the uncertainty prevailing in financial markets. Against this background, the risks to the growth outlook remained on the downside.

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

Looking at the monetary analysis, annual M3 growth, after a certain moderation in 2000 and early 2001, accelerated strongly from mid-2001 onwards. However, this increase was not interpreted as implying risks to price stability at medium to longer horizons for several reasons. First, part of the rise in M3 growth reflected the greater need of economic agents for transaction balances in order to adjust to previous rises in energy and food prices. Second, the relatively flat yield curve prevailing at that time and the associated low opportunity cost of holding money enhanced the attractiveness of holding short-term monetary assets relative to riskier long-term instruments. Finally, and more fundamentally, the uncertainties surrounding the interpretation of monetary developments were compounded by the incidence of sizeable shifts in private investors' portfolios from shares and other longer-term financial assets towards safe and more liquid monetary assets included in M3. These portfolio shifts were seen as a response by investors to the persistent uncertainties in the aftermath of the global stock market correction observed from spring 2000 onwards and the terrorist attacks of 11 September 2001, supporting precautionary savings. The magnitude and causes of these portfolio shifts were unprecedented and, as such, associated with an unusually high degree of uncertainty with regard to their interpretation.

Overall, the portfolio shifts were judged by the Governing Council to be a temporary, albeit potentially prolonged, phenomenon that would tend to unwind once economic, financial and geopolitical conditions normalised. This assessment was supported by the fact that annual growth of loans to the private sector continued to decline, especially to non-financial corporations, in a context of rather subdued economic activity. Thus, the policy-relevant signal from the monetary analysis in this phase was rather nuanced. On the one hand, taking portfolio shifts into account, the strong M3 growth was not seen as implying inflationary pressures at medium to longer horizons. On the other hand, growth in M3 corrected for the estimated impact of portfolio shifts remained rather sustained, thereby implying upside risks to the interpretation of monetary dynamics, and thus the outlook for price developments over the medium to longer term. This message was particularly

important in 2002 and 2003, a time when the emergence of deflationary risks for the euro area were being discussed in public.<sup>6</sup>

#### PHASE 4 – NO CHANGES TO KEY ECB INTEREST RATES (MID-2003 TO END-2005)

As from June 2003, the Governing Council kept interest rates steady for two and a half years, with the minimum bid rate on the main refinancing operations remaining at the historically low level of 2.0%.

On the price side, in the second half of 2003, HICP inflation did not fall as swiftly and strongly as previously expected, largely due to adverse food price developments and higher than expected oil prices – although the latter were attenuated by the appreciation of the euro. In addition, increases in indirect taxes and administered prices in late 2003 and early 2004 affected inflation rates adversely. Despite large increases in commodity and energy prices and against the background of recovering but still relatively moderate economic growth, underlying domestic inflationary pressures remained contained throughout 2004 and most of 2005. In particular, wage developments moderated over this period. Nonetheless, headline inflation remained somewhat elevated in 2005, mainly on account of high increases in energy prices and, to a lesser extent, rises in administered prices and indirect taxes. Overall, annual HICP inflation stood at 2.2% in 2005, slightly higher than the rate of 2.1% observed in the two preceding years. As 2005 progressed, the economic analysis suggested that upside risks were increasing, especially with respect to potential second-round effects in wage and price-setting that stemmed from higher oil prices.

Where economic activity was concerned, the overall picture brightened during the second half of 2003 when euro area exports increased significantly as a result of the renewed dynamism of the world economy. While domestic demand remained weak in the second half of 2003, the conditions for its recovery were seen to be in place, not least in view of the given low level of interest rates and the generally favourable financing conditions. Furthermore, ongoing adjustment in the corporate sector aimed at enhancing productivity and profitability supported the expectation that business investment would gradually recover. Overall, all available forecasts and projections produced in the second half of 2003, including the Eurosystem staff macroeconomic projections published in December, pointed to a continued strengthening of real GDP growth in 2004 and 2005.

In fact, the recovery in economic activity in the euro area, which started in the second half of 2003, continued in 2004 and 2005. Real GDP grew, on average, by 0.5%, quarter on quarter, in the first half of 2004, the highest rate recorded since the first half of 2000. It moderated somewhat in the second half of 2004 and the first half of 2005. This moderation was partly on account of rising oil prices, a temporary deceleration in world economic growth and the lagged effects of the past appreciation of the euro. However, the conditions for a strengthening of economic activity were seen to have remained in place, despite some downside risks to growth related to low consumer confidence, high and volatile oil prices and global imbalances. On the external side, the growth of the world economy remained strong, thereby supporting euro area exports. On the domestic side, very favourable financing conditions, robust corporate earnings and business restructuring provided a positive environment for investment. Private consumption growth was expected to benefit from an anticipated increase in real disposable income in the context of stronger growth in employment and lower inflation. In fact, in the second half of 2005, the expansion of economic activity in the euro area regained momentum.

<sup>6</sup> In this context, it is important to note that the portfolio shifts observed during this period can also be interpreted as a sign of trust in the soundness of the European banking sector, thereby dispelling concerns regarding the possible emergence of debt deflation in the euro area.

Key ECB rates unchanged for  
2½ years

Domestic price pressures  
contained

Economic recovery  
underway

Monetary dynamics  
moderated in 2003 and  
early 2004 ...

Turning to the monetary analysis, financial and economic uncertainty began to recede and portfolio allocation started to normalise, mainly in response to developments in Iraq up to mid-2003. As a consequence, annual M3 growth moderated substantially between mid-2003 and mid-2004 as past portfolio shifts into monetary assets unwound. However, consistent with a symmetric interpretation of the impact of portfolio shifts on the policy-relevant signal in monetary developments, this fall in headline M3 growth was not interpreted as implying less inflationary pressures at medium to longer horizons. Rather, it was seen as providing evidence from the monetary side, confirming the view that the levels of uncertainty and risk aversion were gradually returning to historical norms. In fact, the M3 series corrected for the estimated impact of portfolio shifts continued to grow at a sustained and slightly increasing rate through this period, supporting the impression that the underlying rate of monetary expansion was not being reflected in the substantially lower rate of headline M3 growth. In addition, the annual rate of growth of loans to the private sector increased in the second half of 2003.

... before gaining  
momentum from mid-2004  
onwards

In the course of 2004, monetary analysis provided evidence of a further unwinding of portfolio shifts, albeit at a slower pace than could have been expected on the basis of historical patterns for the elimination of accumulated liquidity holdings. Nevertheless, headline annual M3 growth increased from mid-2004 onwards. In 2005 monetary dynamics gained further momentum and were assessed as implying increasing upside risks to price stability at medium to longer horizons. In particular, the robust credit and monetary expansion since mid-2004 reflected the stimulative effect of the then prevailing very low level of interest rates in the euro area and, later on, renewed dynamism of the euro area economy, rather than the portfolio shifts between 2001 and 2003. Strong monetary growth contributed further to the already ample liquidity in the euro area, thereby indicating growing upside risks to price stability over the medium to longer term.

Withdrawal of monetary  
accommodation

#### PHASE 5 – WITHDRAWAL OF MONETARY POLICY ACCOMMODATION (SINCE END-2005)

Since the end of 2005, the Governing Council has raised the key ECB interest rates by a total of 200 basis points, bringing the minimum bid rate in the main refinancing operations of the Eurosystem to a level of 4% by the end of June 2007. This adjustment of the accommodative monetary policy stance was warranted in order to address risks to price stability, as identified by both the economic and the monetary analyses. However, it is important to note that, in December 2005, when the Governing Council started to gradually increase the key ECB interest rates, the monetary analysis played a significant role. At the time, it clearly pointed to upside risks to price stability at medium to longer horizons, whereas the indicators and signals from the economic analysis were rather mixed. Overall, the gradual withdrawal of monetary accommodation took place against the background of sound economic growth and continued vigorous money and credit expansion in the euro area.

As regards prices, average annual HICP inflation was 2.2% in 2006 and 2.1% in 2007, mainly driven by domestic demand. In both years, the headline inflation rate fluctuated significantly, largely on account of developments in oil prices. In 2006 it followed an increasing trend until August, mainly as a result of substantial increases in energy prices, while the annual inflation rate fell below 2% in the remaining months of the year, largely as a consequence of significantly declining oil prices and base effects. Until the third quarter of 2007, annual inflation rates developed in line with the ECB's definition of price stability, partly because of favourable base effects stemming from energy price developments a year earlier.

Inflation accelerated ...

Towards the end of 2007 and in early 2008, by contrast, annual inflation rose sharply. It reached levels significantly above 2%, driven largely by substantial increases in international oil and food prices in the second half of 2007. In particular, strong short-term upward pressure on prices has increased since the fourth quarter of 2007. Notwithstanding these price shocks, wage developments remained rather

moderate and medium to longer-term inflation expectations stayed anchored at levels consistent with price stability throughout this phase, despite the favourable economic environment and tightening labour markets. While this helped to dampen inflationary pressures, the risks to price stability over the medium term remained clearly on the upside. These risks included: the scope for additional rises in prices of oil and agricultural products (in particular in late 2006 and in 2007); further increases in administered prices and indirect taxes, over and beyond those foreseen thus far; and the possibility of increases in firms' pricing power, particularly in sectors sheltered from competition. More fundamentally, the possible emergence of stronger than expected wage dynamics and, in particular, of second-round effects in wage and price-setting as a consequence of higher commodity prices and elevated headline inflation rates posed substantial upside risks to price stability.

Economic expansion gained momentum in the first half of 2006 and became gradually more broadly based and increasingly self-sustaining, with domestic demand as the main driver. Overall, notwithstanding the impact of high and volatile oil prices, real GDP rose by 2.8% in 2006, compared with 1.6% in 2005 and 2.1% in 2004. In 2007, economic activity continued to expand at solid rates. Real GDP grew by 2.7%, driven mainly by domestic demand. Investment remained dynamic, supported by favourable financing conditions, strong corporate earnings and continued gains in business efficiency on account of restructuring made in the corporate sector over an extended period of time. However, in the second half of 2007, the outlook for economic activity was clouded by unusually high uncertainty. This uncertainty stemmed from the difficulty of ascertaining the potential impact on the real economy of the financial turmoil that erupted in August. Nevertheless, the economic fundamentals of the euro area remained sound, with corporate profitability sustained, employment growth robust and the unemployment rate declining to 7.4%, a level not seen for 25 years. The balance of risks to the growth outlook tilted to the downside.

A cross-check with the monetary analysis confirmed that upside risks to price stability prevailed at medium to longer horizons. Money and credit expansion remained very vigorous throughout this phase, supported by a persistently strong growth of bank loans to the private sector. Viewed from a medium-term perspective, the marked dynamism of monetary and credit growth reflected a continuation of the persistent upward trend in the underlying rate of monetary expansion observed since mid-2004. As such, it added further to the accumulation of liquidity which, in an environment of continued strong monetary and credit growth, pointed to upside risks to price stability over the medium to longer term. The Governing Council therefore continued to pay particular attention to monetary developments, also with a view to better understanding the shorter-term response of financial institutions, households and firms to the financial market turmoil in the second half of 2007. Thus far, there has been little evidence that the financial market turmoil has strongly influenced the overall dynamics of money and credit expansion.

## THE PERFORMANCE OF THE ECB'S MONETARY POLICY IN TERMS OF PRICE STABILITY

Over now almost a full decade, the euro has been established as a stable currency, appreciated not only by the now 320 million fellow citizens in the euro area countries, but also widely accepted and used in international financial markets (see Chapter 5). With an average annual HICP inflation rate of slightly above 2% since the introduction of the euro, prices have been relatively stable, significantly below the average annual inflation rates that had prevailed in most of the countries participating in the euro area in the decades preceding the start of Monetary Union (see Chapter 4). In the same vein, inflation volatility has been significantly lower within the euro area than was the case in previous periods.

... while economic growth remained sustained and ...

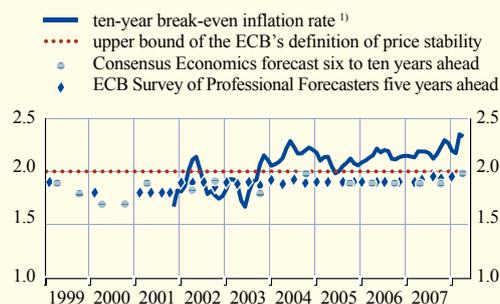
... monetary expansion very vigorous

The euro – a stable currency

Sustained anchoring of inflation expectations ...

Moreover, the ECB has been successful in anchoring longer-term inflation expectations in line with its definition of price stability (see Chart 10). This is reflected in measures of inflation expectations derived from inflation-linked bonds and from surveys (Consensus Economics Forecasts and ECB Survey of Professional Forecasters). The secure anchoring of private inflation expectations at longer horizons reflects favourably on the smooth functioning of the ECB's monetary policy and its ability to credibly deliver price stability over the medium term. The stability of inflation expectations since then has been remarkable. This is even more striking against the backdrop of a sequence of substantial adverse upside price shocks that occurred during that time, notably the more or less continuous increase in oil prices over that period (from around USD 10 per barrel in 1999 to a peak of almost USD 120 per barrel in 2008), substantial rises in international food prices and, on the domestic side, almost regular increases in indirect taxes and important administered prices in most euro area countries.

Chart 10 Expectations of long-term inflation



Sources: Consensus Economics and ECB.

1) Break-even inflation rates derived from inflation-linked bonds mainly capture market inflation expectations and inflation risk premia.

... through medium-term orientation ...

In sum, the Governing Council of the ECB – based on its regular economic and monetary analyses in the context of its medium-term-oriented monetary policy strategy – has delivered what it is expected to deliver according to its mandate under the Treaty, which is price stability over the medium term for the euro area as a whole.

By avoiding frequent adjustments in its policy stance, the ECB's monetary policy has not itself become a source of uncertainty in an already uncertain economic environment. This has certainly helped to stabilise medium to long-term inflation expectations at a level consistent with price stability.

### TRANSPARENCY, ACCOUNTABILITY AND COMMUNICATION

... and clear communication

To be effective in its monetary policy, the ECB has placed great emphasis from the very outset on communicating its policy actions and the economic rationale underlying its decisions to financial market participants and the general public in a transparent and timely manner. This has helped to anchor inflation expectations, even at times when they tend to rise.

Overall, the combination of communication and clear decision-making has helped the public to better understand the ECB's monetary policy decisions in the context of its publicly announced strategy. In the same vein, it has helped the financial markets to better understand the systematic response pattern of the ECB's monetary policy to economic developments and shocks, and thus to better anticipate the broad direction of monetary policy over the medium term, thereby making policy moves more predictable.

Greater transparency makes monetary policy more effective ...

Today, transparency is regarded as an important element of modern central banking, as it helps to increase the credibility and effectiveness of monetary policy in various ways. First of all, transparency about the goals of monetary policy and how the central bank goes about achieving these goals helps

a central bank to foster credibility. This, in turn, will enhance the central bank's ability to steer long-term inflation expectations, and to thereby influence price and wage-setting behaviour in a way that is consistent with price stability. In other words, a credible monetary policy can ensure that the unavoidable first-round effects from price increases, e.g. oil price rises, will not result in second-round effects on wages and prices, eventually leading to a general increase in inflation.

Furthermore, transparency about the central bank's monetary policy strategy and assessment of the economic situation enhances the ability of financial market participants to anticipate the future course of monetary policy, which in turn helps to reduce financial market volatility and increases the central bank's leverage over longer-term interest rates. Finally, a strong commitment to transparency imposes self-discipline on policy-makers, which ensures that their policy decisions and explanations are consistent and in line with their mandate.

The ability of financial markets to predict monetary policy moves has generally increased over the last decade.<sup>7</sup> This development supports the view that the transparent approach to monetary policy adopted by central banks worldwide has enhanced the markets' understanding of monetary policy. The fact that long-term inflation expectations have stabilised to an unprecedented degree across countries over the last decade suggests that transparency has also helped to anchor inflation expectations.

The central bank faces a trade-off between comprehensiveness and clarity of communication, since it will not be possible to provide a completely exhaustive description of all the elements and aspects relevant for policy-making, while, at the same time, being clear. Also, transparency is more than just releasing information, as this does not by itself translate into a better understanding of monetary policy. The information needs to be effectively conveyed to the public in order to enhance the overall effectiveness of monetary policy. Therefore, in order to reap the benefits of transparency, central banks require an effective communication strategy. Central bank communication should aim to ensure that the information relevant to the public's understanding of monetary policy is disseminated in a timely and open, yet clear and unambiguous manner, and that this is done in a way that is adapted to different environments and audiences, from the general public to financial market participants.

The key elements of the monetary policy strategy enhance transparency and accountability vis-à-vis the general public. The quantitative definition of price stability in terms of an annual increase in the HICP provides a clear yardstick against which the public can hold the ECB accountable while helping to anchor market expectations. The two-pillar approach sets out a clear framework for internal decision-making and external communication. Finally, the ECB shares the information exchanged in the Governing Council with the general public and explains the economic rationale behind policy decisions in great detail.

Communication must also reflect the fact that monetary policy has to operate in a complex, uncertain and constantly evolving environment. The external communication of the monetary policy strategy places a premium on faithfully reflecting this aspect. In view of the effects of various unexpected shocks that can hit the economy and the long and variable time lag with which monetary policy actions are transmitted to prices, the precise timing, and sometimes even the direction, of an interest rate decision is difficult to predict. By publicly announcing its monetary policy strategy and communicating its regular assessment of economic developments in a transparent manner, the ECB has achieved a high degree of predictability, making monetary policy more effective (see Box 2).

<sup>7</sup> For a survey of the empirical literature on the predictability of monetary policy, see T. Blattner, M. Catenaro, M. Ehrmann, R. Strauch and J. Turunen, "The predictability of monetary policy", ECB Occasional Paper No 83, 2008.

... enhances its predictability  
and ...

... fosters accountability

In the context of a global trend towards more detailed and transparent communications by central banks, the key elements of the communication strategy of the ECB, notably the introductory statements of its monthly press conference, which explain its policy decisions almost in real time, have initiated a move towards an increased real-time disclosure of information.

## Box 2

### KEY COMMUNICATION TOOLS AND CHANNELS USED BY THE ECB

The introductory statement is at the centre of the monthly press conferences held by the President and the Vice-President immediately after the first Governing Council meeting of the month. On this occasion, the introductory statement is presented by the President on behalf of the Governing Council. It provides a timely and comprehensive summary of the policy-relevant assessment of economic and monetary developments, as well as the monetary policy stance, and it is structured along the lines of the ECB's monetary policy strategy. 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. 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.

Besides the monthly press conference, the Monthly Bulletin is another important communication channel used by the ECB. The Monthly Bulletin provides the general public and the financial markets with a detailed and comprehensive analysis of the economic environment and monetary developments. It is usually published one week after the meeting of the Governing Council and contains the information that the Governing Council had at its disposal 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 before the European Parliament's Committee on Economic and Monetary Affairs four times a year. On these occasions, the President explains the ECB's policy decisions and then answers questions raised by Committee members. The Committee meetings are open to the public and the transcripts of the President's testimony are subsequently published on the websites of both the European Parliament and the ECB. Other members of the Executive Board of the ECB also appear before the Committee.

To address a variety of audiences, the members of the Governing Council take on a large number of public engagements. Speeches by the members of the Executive Board and the Governing Council, as well as interviews granted by Governing Council members, are likewise important tools for explaining the views of the ECB to the public.

### 3.3 MONETARY POLICY IMPLEMENTATION

Short-term money market rates play an important role in the transmission of monetary policy. By steering such rates, monetary policy exercises significant influence over market interest rates and, through various channels, over the spending decisions of companies and households, over monetary developments and, ultimately, over the general price level. This section explains how the ECB implements monetary policy decisions by steering interest rates at the very short end of the money market segment. It also highlights the main challenges that the Eurosystem has faced in implementing monetary policy decisions since the inception of the euro.

#### SEPARATION OF MONETARY POLICY AND LIQUIDITY MANAGEMENT

To understand the liquidity management of the ECB, it is useful to distinguish the determination of the monetary policy stance from its actual implementation. As explained in Section 3.1, the monetary policy strategy provides a structure for the relevant information on the economy on which monetary policy decisions are made. Indeed, based on its regular economic and monetary analyses, the Governing Council decides on the level of key ECB interest rates that best serves the fulfilment of its price stability objective. The Executive Board of the ECB is then responsible for the implementation of these monetary policy decisions. Monetary policy decisions are implemented by steering short-term money market rates towards the interest rate level decided by the Governing Council. Setting the key ECB interest rates, and communicating on them, certainly plays a key role in guiding market participants. However, this alone is not sufficient to bring the short-term market interest rates into line with the key ECB rate. Steering short-term rates is in fact also achieved by the liquidity management of the Eurosystem with the support of its operational framework.

The operational framework contains the set of instruments and procedures with which the Eurosystem implements the monetary policy decisions in practice, i.e. with which it steers short-term money market rates. Another instrumental factor in influencing money market rates is that, overall, the euro area banking system needs liquidity and is therefore reliant on refinancing by the Eurosystem. In this environment, the Eurosystem acts as liquidity supplier to banks by means of its open market operations. In doing so, the Eurosystem manages the amount of liquidity available within the euro area banking sector with the aim of establishing balanced liquidity conditions and bringing short-term money market rates as close as possible to the interest rate level decided by the Governing Council.

To sum up, the Eurosystem makes a clear distinction between, on the one hand, the decision by the Governing Council of the ECB on the monetary policy and, on the other hand, the implementation of this decision through monetary policy instruments. The clear separation between the decision on the monetary policy stance and its implementation reduces the risk that economic agents may mistakenly perceive volatility in short-term money market rates, triggered by temporary and unpredictable fluctuations in liquidity demand and supply, to be monetary policy signals of the Eurosystem. This separation has been particularly important during the financial market turmoil that started in early August 2007, when short-term money market rates were occasionally very volatile.

#### THE OPERATIONAL FRAMEWORK FOR MONETARY POLICY IMPLEMENTATION

The Eurosystem's operational framework for monetary policy implementation is based on the principles laid down in the Treaty establishing the European Community. Article 105 of the Treaty

Setting key ECB rates

Managing liquidity

Separation of the  
policy stance from its  
implementation

The principles guiding the  
operational framework

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 (...)”.

A number of other “guiding principles” were also formulated to govern the design of the operational framework. The most important is operational efficiency. Operational efficiency can be defined as the capacity of the framework to transmit monetary policy decisions as quickly and precisely as possible to short-term money market rates. The need to ensure the equal treatment of banks and the harmonisation of rules and procedures throughout the euro area are other important principles. Another principle relates to the decentralisation of the implementation of monetary policy. Accordingly, the monetary policy operations are normally implemented through the NCBs. Finally, the operational framework has to apply the principles of simplicity, transparency, safety and cost efficiency.

### Three instrument to steer interest rates

To steer the short-term money market rates towards the interest rate level set by the Governing Council, the ECB and the Eurosystem rely on three instruments: (1) minimum reserve requirements; (2) open market operations; and (3) standing facilities. These instruments influence the amount of liquidity available within the euro area banking sector, which in turn influences the level of short-term rates prevailing in the money market.<sup>8</sup> In this context, the Eurosystem acts as liquidity supplier and – via its operational framework – helps the banks to meet their liquidity needs in a smooth and well-organised manner.

### Banks' liquidity needs and the minimum reserve requirements

(1) Banks need a certain amount of liquidity to satisfy liquidity needs arising from so-called “autonomous liquidity factors”. These factors comprise items on the Eurosystem’s balance sheet which are not related to monetary policy instruments.<sup>9</sup> The largest autonomous factor is banknotes in circulation. In addition, banks need liquidity to fulfil their reserve requirements. Indeed, banks are required to hold minimum reserves with the Eurosystem. Minimum reserve requirements create a structural demand for liquidity on the side of the euro area banking sector. For each institution, reserve requirements are determined in relation to its balance sheet. At present, around 6,000 banks are subject to minimum reserve requirements. The total liquidity needs of the euro area banking sector averages around €450 billion. The aggregate daily minimum reserves currently account for around half of this total.

The key function of the minimum reserve system is to stabilise money market rates. Indeed, reserve requirements have to be fulfilled on average over the maintenance period, where the maintenance period is the period over which banks’ compliance with the minimum reserve requirements is calculated. The maintenance period usually starts on the Tuesday following the meeting of the Governing Council at which the assessment of the monetary policy stance is pre-scheduled. The averaging mechanism implies that holding reserves on any specific day in the maintenance period is, in principle, a close substitute for holding reserves on any other day in the maintenance period. This means that reserve holdings are allowed to fluctuate from day to day and that daily liquidity fluctuations are smoothed out. Minimum reserves do not entail a cost for the banking sector as they are remunerated by the Eurosystem at the average marginal rate of the main refinancing operation over the maintenance period.

<sup>8</sup> For a complete overview of the Eurosystem’s framework for monetary policy, see ECB, “The implementation of the monetary policy in the euro area”, as amended in September 2007.

<sup>9</sup> See also the articles entitled “The liquidity management of the ECB” and “The Eurosystem’s experience with forecasting autonomous factors and excess reserves” in the May 2002 and January 2008 issues of the Monthly Bulletin respectively.

Table 1 Eurosystem open market operations and standing facilities

Monetary policy operations	Types of transaction		Maturity	Frequency
	Provision of liquidity	Absorption of liquidity		
<b>Open market operations</b>				
Main refinancing operations	Reverse transactions	-	One week	Weekly
Longer-term refinancing operations	Reverse transactions	-	Three months	Monthly
Fine-tuning operations	Reverse transactions	Collection of fixed-term deposits	Non-standardised	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

(2) Open market operations play the most important role in managing the liquidity conditions of the banking sector of the euro area and in steering short-term money market interest rates. Open market operations are carried out in a decentralised manner: the ECB coordinates the operations, but the transactions themselves are conducted by the NCBs.

Three types of operation have been employed by the Eurosystem: (i) main refinancing operations (MROs); (ii) longer-term refinancing operations (LTROs); and (iii) fine-tuning operations (FTOs) (see Table 1).

Through MROs and LTROs, the Eurosystem lends funds to banks. Lending is always for a given, short period of time and against collateral in order to protect the Eurosystem against financial risk (see Box 3). On a daily average basis, the Eurosystem lends a total of around €450 billion to the euro area banking sector through its open market operations. The Eurosystem's operations are far larger than those of the other main central banks.

Both MROs and LTROs are regular operations. MROs are conducted on a weekly basis in the form of a variable tender rate auction with a minimum bid rate and have a one-week maturity. In a variable rate tender with a minimum bid rate, banks may submit bids with several interest rates at or above the pre-announced minimum bid rate. The bids at the highest rates are allotted first, followed by the next highest until the amount to be allotted is exhausted. The rate at which the amount is exhausted is the marginal rate and, at this rate, bids are allotted pro rata. LTROs are performed on a monthly basis in the form of a pure variable rate tender and have a three-month maturity. In contrast to MROs, the amount of liquidity provided through LTROs is fixed in advance. In these operations, the Eurosystem acts as a rate taker. A wide range of banks can participate in the MROs and LTROs, i.e. around 1,700 banks. This number is fairly large, also when compared with the operational framework of the other main central banks.

FTOs are not a regular tool for the provision or absorption of liquidity, but are rather conducted when needed. In order to allow such operations to be conducted flexibly and rapidly, their maturity and frequency are not standardised, but can be adapted to any particular situation. Given that these tenders need to be executed quickly (usually within 90 minutes from the announcement of the operation), only a limited number of banks can participate in those operations (currently around 130 banks). FTOs are aimed at smoothing the effects unexpected liquidity fluctuations in the banking sector have on interest rates.

The Eurosystem's supply of liquidity and open market operations

(3) The Eurosystem also offers two standing facilities to banks – a marginal lending facility and a deposit facility (see Table 1). These facilities form a corridor (typically,  $\pm 100$  basis points) around the minimum bid rate, and thereby limit the volatility of the overnight rate (i.e. the short-term money market interest rate). The marginal lending facility forms the ceiling of the corridor. It can be used by banks to obtain liquidity overnight against eligible collateral. The deposit facility forms the floor of the corridor. It can be used by banks to make overnight deposits with the Eurosystem.

### MONETARY POLICY IMPLEMENTATION SINCE THE INCEPTION OF THE EURO

Since the introduction of the euro, the operational framework for monetary policy implementation has served the Eurosystem well. The main operational objective, namely to steer very short-term money market rates close to the minimum bid rate of the MRO (determined by the Governing

#### Box 3

#### THE EUROSISTEM'S COLLATERAL FRAMEWORK

In line with central bank practice worldwide, all liquidity-providing operations of the Eurosystem need to be based on adequate collateral to protect the Eurosystem from incurring losses. At the same time, the collateral framework needs to ensure that sufficient collateral is available to a broad range of banks, so that the Eurosystem can provide the amount of liquidity it deems necessary. To facilitate this, the Eurosystem accepts a broad range of assets as collateral.<sup>1</sup> This feature of the Eurosystem's collateral framework has recently gained widespread recognition as it has been one stabilising feature in the recent financial market turmoil. Indeed, it ensured that banks had enough collateral at their disposal to access the Eurosystem's open market operations. This box provides a brief overview of the Eurosystem's collateral framework and of the main refinements undertaken over the past 9½ years.

In 1998, a “two-tier collateral framework” was adopted to ensure a smooth transition to Monetary Union. A “two-tier collateral framework” meant that eligible assets were divided into two groups, i.e. two “tiers”. This aimed to accommodate differences in financial structures between Member States at the beginning of EMU. Indeed, while tier one assets consisted of marketable debt instruments that fulfilled euro area-wide eligibility criteria, tier two assets comprised assets that were important for certain national financial markets and banking systems and fulfilled national eligibility criteria only. In principle, all assets could be used on a cross-border basis throughout the euro area. This framework served the Eurosystem well and proved resilient to cope also with substantial temporary increases in the demand for collateral during times of market stress (e.g. the millennium change).

However, the two-tier collateral framework also had drawbacks. For example, the fact that some asset classes were eligible only in some countries, and not in all, was considered potentially to undermine the level playing field in the euro area, which is one important principle of the Eurosystem's monetary policy framework. Therefore, and as a result of two public consultations (conducted in June 2003 and May 2004), the Eurosystem decided to establish a single-list

<sup>1</sup> See Chapter 6 of the ECB publication entitled “The implementation of monetary policy in the euro area”, as amended in September 2007, which covers in detail the eligibility criteria and risk control measures of eligible assets for Eurosystem credit operations.

framework (referred to as the “single list”) for common use in all the Eurosystem’s liquidity-providing operations. The single list aimed to further improve the efficiency of the collateral framework. The single list was implemented in two steps. In the first step, which was completed in May 2005, some amendments were made in relation to marketable assets.<sup>2</sup> In the second step, in January 2007, non-marketable assets and, in particular, credit claims (i.e. bank loans) became eligible as collateral in all euro area countries. However, owing to technical lead times, a fully unified regime for credit claims will only be in place in January 2012.<sup>3</sup>

The acceptance of a diverse range of asset categories as collateral for Eurosystem credit operations has meant that it is not possible to apply a uniform set of eligibility criteria across asset categories. Therefore, two sets of eligibility criteria and risk control measures<sup>4</sup> broadly apply, one relating to marketable assets and the other to non-marketable assets. However, both sets of criteria ensure a comparable degree of risk protection for the Eurosystem. Only high-credit-quality assets are accepted as collateral. The eligibility criteria for marketable assets have been kept sufficiently general and, as a result, the collateral framework has remained responsive to market innovations and follows market developments. As financial markets evolve, further refinements of the eligibility criteria and risk control measures will continue to be defined, also in the years to come.

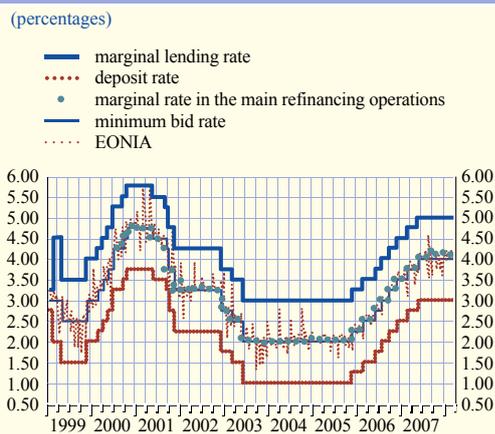
In 2007, the average amount of eligible collateral amounted to €9.5 trillion, showing an increase of 73% from around €5.5 trillion in 1999. As regards the composition of collateral, general government debt accounted for 49% of the total, with the remainder of marketable collateral consisting of credit institutions’ covered and uncovered bonds (12% and 17% respectively), corporate bonds (9%), asset-backed securities (8%) and other bonds such as those issued by supranational organisations (4%). Around 12% of these total eligible assets, i.e. €1.1 trillion, was deposited for use with the Eurosystem in 2007. The composition of the deposited asset pool differs from the composition of euro debt markets as banks tend to deposit less liquid collateral in credit operations with the Eurosystem. The average volume of credit claims represented 10% of the overall posted collateral in 2007. However, the full potential of this additional collateral source has not yet been reaped, since the range of credit claims whose creditworthiness could be assessed is gradually increasing. The cross-border use of collateral, whereby a counterparty in a given country of the euro area uses collateral originating from another country of the euro area, is one indication of the progress of financial integration. In 2007, 51% of collateral was used on a cross-border basis, compared with 12% in 1999.

2 These amendments included (i) the elimination of equities from the eligible assets, (ii) the specification of the non-regulated markets that are acceptable to the Eurosystem from a collateral management point of view, (iii) a refinement of the criterion regarding debt instruments issued by credit institutions and (iv) the introduction of euro-denominated debt instruments issued by entities established in the G10 countries that are not part of the European Economic Area.

3 A long lead time is necessary for the development of operational systems and procedures for assessing, evaluating and mobilising credit claims, since they differ from marketable instruments in several important respects. Credit claims lack standardisation and uniform documentation due to their diversity, they usually lack credit ratings by credit agencies and external price sources, they may have legal prohibitions for sale to other parties, and the continued existence of a particular loan is not easily verifiable. The Eurosystem created a credit assessment framework (ECAAF) in 2006 to allow additional credit assessment sources other than rating agencies to cope with newer asset classes in the single list.

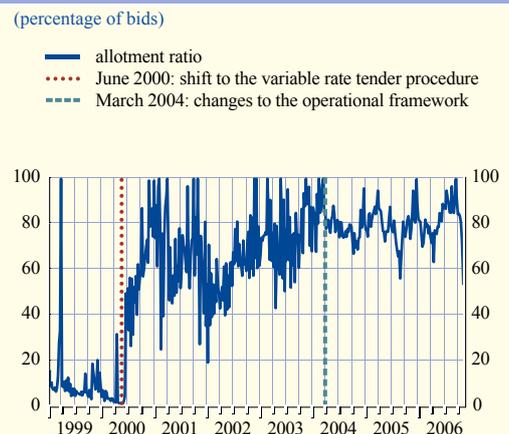
4 Risk control measures are applied to the assets underlying the Eurosystem’s liquidity-providing operations in order to protect the Eurosystem against the risk of financial loss if underlying assets have to be realised owing to the default of a bank. The Eurosystem applies a minimum rating requirement for all kind of issuers and assets equivalent to a single A- rating, which is the Eurosystem’s defined benchmark for high credit standards. For more details, please see ECB, “The implementation of monetary policy in the euro area”, as amended in September 2007.

**Chart 11 Key ECB interest rates and the EONIA since January 1999**



Source: ECB.  
 Note: The rate for the MRO refers, for operations settled before 28 June 2000, to the rate applicable to fixed rate tenders. For operations settled after that date, the rate is the minimum bid rate applicable to variable rate tenders.

**Chart 12 The development of the allotment ratio, January 1999 – November 2006**



Source: ECB.

Council), has been achieved. Moreover, the operational framework has proved robust and resilient even when faced with exceptional challenges such as the millennium change, the terrorist attacks of 11 September 2001 or the recent financial market turmoil in 2007/08. In none of these cases has the Eurosystem had to resort to exceptional measures not foreseen in its operational framework.

Chart 11 demonstrates that the overnight market interest rate (the EONIA)<sup>10</sup> has generally remained close to the minimum bid rate. It also shows that the interest rates on standing facilities have provided a ceiling and a floor to the EONIA. The fluctuations seen in the chart largely reflect temporarily tight or loose liquidity conditions in the money market. The efficiency of the Eurosystem's monetary policy framework has to some extent set an example and has inspired other central banks to set up a corridor system.

The refinements introduced since 1999 have certainly been instrumental in fostering the good performance of the operational framework. In the past 9½ years, three refinements have been carried out.

First, a variable rate tender procedure was introduced in June 2000 to replace the fixed rate tenders that had been used at the outset of Monetary Union. This refinement did not per se constitute a change to the operational framework as the framework allows both variable rate and fixed rate tender procedures to be applied. The shift to the variable rate tender procedure was in response to so-called “overbidding” by banks in the Eurosystem's operations, which had become particularly acute during the first half of 2000. Overbidding refers to the situation where banks submit high and ever-increasing bids in MROs. In such cases, the ratio between the allotment and bid amounts falls to a very low level (see Chart 12). Overbidding occurred at times when banks expected an increase in the key ECB rates to take place in the prevailing maintenance period. Indeed, in expectation of

<sup>10</sup> EONIA stands for euro overnight index average and is a measure of the effective interest rate prevailing in the euro interbank overnight market.

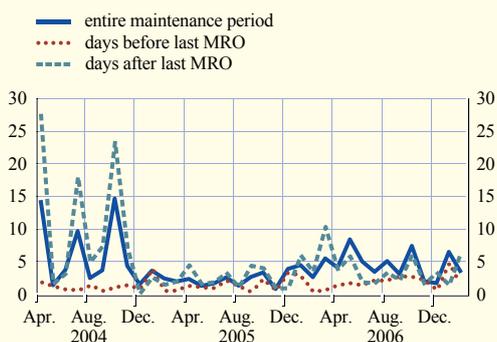
<sup>11</sup> In a fixed rate tender procedure, the ECB specifies the interest rate in advance and banks bid the amount of money they want to transact at the fixed interest rate. Bids are then allotted on a pro rata basis.

Refinements to the operational framework

Shift to the variable rate tender procedure

**Chart 13 EONIA standard deviation per maintenance period (day to day) - April 2004 - January 2007**

(basis points)



Source: ECB.

an increase in interest rates, the overnight market rate would rise to the expected level, i.e. above the fixed rate applied in the MRO.<sup>11</sup> Then, banks would have a particularly strong incentive to get funds through the MRO, and would thus overbid.

On 8 June 2000, the Governing Council of the ECB decided to shift from a fixed rate tender to variable rate tender procedure for the MROs as of 28 June. The Governing Council also decided to set a minimum bid rate for these operations to signal its monetary policy stance. The minimum bid rate would take over the role played by the rate applied to fixed rate tenders. The new tender procedure immediately solved the problem of overbidding.

Second, the shift to the variable rate tenders procedure did not shield the Eurosystem from so-called “underbidding” by banks. Underbidding refers to the situation where banks’ total bids are lower than the intended allotment amount. In that case, banks face the risk of running short of liquidity at the end of the maintenance period, and thus have to take recourse to the marginal lending facility, driving up the overnight market interest rate. Starting in 2001, in an environment where reductions in key ECB rates were expected, underbidding occurred on eight occasions. Indeed, in expectation of a decrease in interest rates in the prevailing maintenance period, the overnight market rate would decline to the expected level, i.e. below the minimum bid rate. Thus, the incentive for banks to get funds through the MROs would be reduced.

To prevent expectations of changes in key ECB rates from affecting the bidding of banks already in the prevailing maintenance period, the Governing Council decided in January 2003 to implement two changes to its operational framework, which became effective in March 2004. The first change altered the timing of reserve maintenance periods so that these would always start after the Governing Council meeting at which the monthly assessment of the monetary policy stance is pre-scheduled. Changes to the standing facility rates were aligned with the start of the new reserve maintenance period. The second change referred to the maturity of the MROs, which was shortened from two weeks to one week. This implied that MROs would no longer straddle two maintenance periods. The implementation of the changes went smoothly and banks quickly adapted their bidding behaviour.

Finally, as a consequence of the alignment of the timing of the maintenance period with the Governing Council meeting schedule, the average time span between the last MRO of a reserve maintenance period and the last day of that period increased to six business days. Prior to March 2004, it had varied from one to six days. A side effect of this was the occasional emergence of large liquidity imbalances at the end of maintenance periods, which created some increase in the volatility of overnight market interest rates. In response, since October 2004, the ECB has more frequently counteracted the resulting large liquidity imbalances at the end of maintenance periods by conducting a fine-tuning operation on the last day of the maintenance period. This has served the ECB well in reducing the interest rate volatility sometimes seen in the last week of the maintenance period (see Chart 13).

**Structural changes of March 2004**

**More frequent fine-tuning operations at the end of the maintenance period**

The recent period of financial market turmoil, which started in August 2007 when the US sub-prime mortgage market crisis spilled over to the euro area money market, marks the greatest challenge to the Eurosystem's operational framework seen thus far. In this turbulent episode, the operational framework continued to serve the Eurosystem well, and the ability to steer the overnight rate was maintained (see Chart 11).

In order to steer the overnight rate close to the minimum bid rate, the ECB applied four categories of measures in the face of the financial turmoil.<sup>12</sup>

First, the timing of the supply of liquidity in the course of a maintenance period was changed by making use of both MROs and FTOs. Before the turmoil, the ECB used to supply liquidity smoothly in the course of the maintenance period, but since the onset of recent financial market volatility, it has increased its supply of liquidity at the beginning of the maintenance period, thereby allowing banks to fulfil the bulk of their minimum reserve requirements relatively early in the maintenance period. The overall supply of liquidity, however, has not changed: the Eurosystem still aims at providing the amount of liquidity that enables bank to exactly meet their reserve requirements.

Second, the share of refinancing provided by the Eurosystem via LTROs has been increased, with the share provided via the one-week MROs being reduced accordingly. This has served to lengthen the average maturity of outstanding monetary policy operations.

Third, special tender procedures with full allotment have been used on occasion, notably to alleviate market tensions around the year-end. Such procedures allowed the market to determine the exact allotment amount in circumstances where assessing the demand for liquidity was difficult and required the conduct of FTOs in order to absorb the resulting excess liquidity.

These three categories of measures have allowed the ECB to maintain control over short-term money market rates. None of these measures required a structural change to the Eurosystem's operational framework for monetary policy implementation. Nor were changes needed in the collateral framework, which is viewed to have played an important role in supporting the functioning of the money market.

Finally, the ECB agreed on a currency arrangement (swap line) with the Federal Reserve System in connection with the latter's US dollar Term Auction Facility. The ECB conducted a series of term auction facilities in which it provided US dollar liquidity, on behalf of the Federal Reserve System, to euro area banks.

To conclude, the flexible design of, and the broad range of instruments and procedures within, the Eurosystem's operational framework for the implementation of monetary policy has proved effective and resilient.

In connection with the implementation of monetary policy, it should be noted that, by steering short-term money market interest rates, monetary policy exerts significant influence on market rates and, through various channels, on spending and investment decisions, monetary developments and, ultimately, the development of the price level. The process through which monetary policy decisions influence the economy in general, and the price level in particular, is known as the monetary policy

<sup>12</sup> See also the article entitled "The Eurosystem's open market operations during the recent period of financial market volatility" in the May 2008 issue of the Monthly Bulletin.

transmission mechanism. This process is complex, may be changing over time and could exhibit differences across economies. Box 4 below presents some empirical evidence for the euro area.

**Box 4****THE TRANSMISSION MECHANISM OF MONETARY POLICY**

Looking at the euro area, empirical evidence has shown that the monetary transmission mechanism operates in a broadly similar way across all euro area countries. Banks play a key role in transmitting changes in policy rates to bank lending rates, given the high dependence of firms and households on bank financing and the still relatively limited degree of stock market capitalisation in the euro area. Remaining country-specific differences mainly relate to the emergence of new financial products and new players, the changing nature of competition among banks and different degrees of financial market integration in individual euro area countries.

For the euro area as a whole, the classic interest rate channel plays a dominant role in transmitting monetary impulses to the economy. Other major channels of relevance for the euro area are the money and credit channel and the expectation channel (see Chart A).<sup>1</sup>

As regards the interest rate channel and the money and credit channel, the analyses conducted by the ECB and the Eurosystem have indicated a remarkable degree of convergence in the euro area since 1999. However, differences in terms of levels and movements in bank interest rates still exist across countries. There are also indications that some degree of heterogeneity remains in the pass-through of market rates to bank rates.<sup>2</sup>

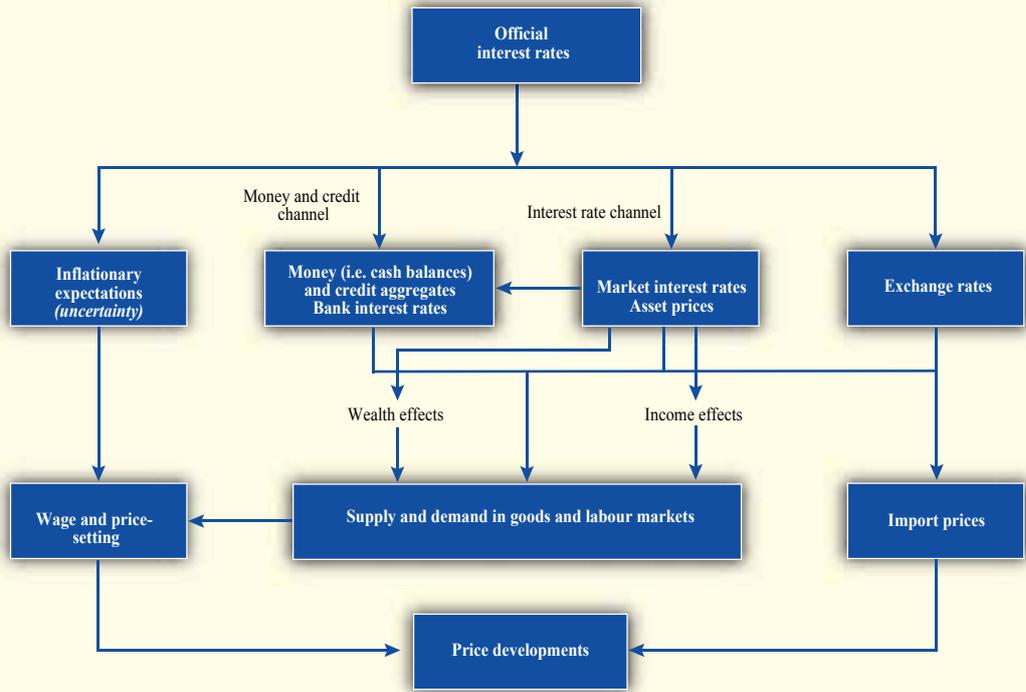
Charts B and C provide some evidence on the extent of heterogeneity across countries. The columns compare the changes in the rates on loans to households and firms at a country level with the changes in the three-month EURIBOR over the period 2003-2008 (see column 13 in Charts B and C), for which harmonised data on bank interest rates are available. In the presence of a complete pass-through, the changes in bank rates should be equal to the changes in the market rates. From the data, it appears, however, that the response of banks in different countries to changes in market rates tends to vary widely, and seems only in some cases to move close to one-to-one. Available evidence shows that, with respect to bank interest rate changes, convergence over time has been greater in the case of loans to households for house purchase than in that of short-term loans to non-financial corporations (or other product categories).

Competition in the financial services industry, bank-customer relations, preferences regarding the maturity of credit contracts or the variability of interest rates, risk premia and the administrative cost of effectively changing interest rates are all likely to influence

1 A more detailed overview of the mechanisms of monetary policy transmission can be found in the article entitled "Monetary policy transmission in the euro area" in the July 2000 issue of the Monthly Bulletin and in the ECB's booklet "The monetary policy of the ECB", 2003. See also A.K. Kashyap and J.C. Stein, "What Do a Million Observations on Banks Say About the Transmission of Monetary Policy", *The American Economic Review*, Vol. 90, No. 3, 2000, pp. 407-428.

2 This is also confirmed by econometric studies. See, among others, H. Sander et al., "Convergence in euro-zone retail banking? What interest rate pass-through tells us about monetary policy transmission, competition and integration", *Journal of International Money and Finance*, 23, 2004, pp. 461-492; G. de Bondt, "Interest rate pass-through: Empirical results for the euro area", *German Economic Review*, 6 (1), 2005, pp. 37-78; and C. Kok Sørensen et al., "Bank interest rate pass-through in the euro area: A cross-country comparison", ECB Working Paper No 580, 2006.

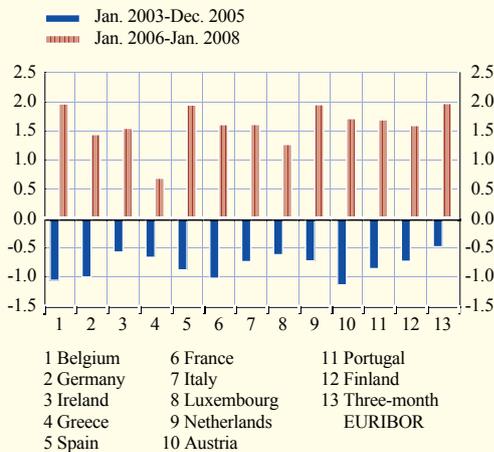
Chart A Schematic presentation of the monetary transmission mechanism



Source: ECB.

Chart B Changes in rates on loans to households for house purchase

(percentage points)

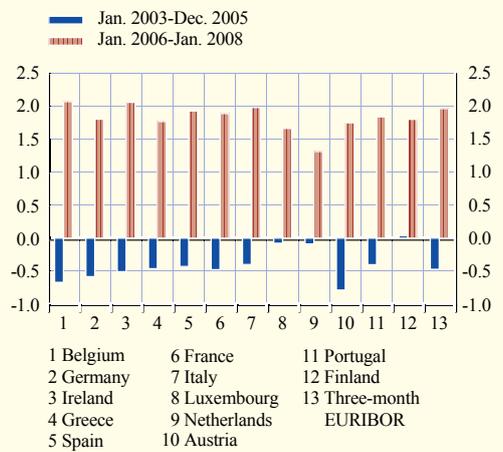


Source: ECB.

Note: The rates used for loans to households for house purchase are floating rates with an initial period of rate fixation of up to one year.

Chart C Changes in rates on loans to non-financial corporations

(percentage points)



Source: ECB.

Note: The rates used are floating rates on loans of over €1 million to non-financial corporations with an initial period of rate fixation of up to one year.

the effectiveness of monetary policy actions via their impact on the bank lending rate pass-through.<sup>3</sup>

Overall, given the prominent role played by banks in lending to households and firms, the credit channel seems of relevance for the euro area, albeit with a varying degree of importance across euro area countries.<sup>4</sup> This channel typically includes a balance sheet and a bank lending channel.<sup>5</sup>

With respect to at the balance sheet channel, the analysis has found that, in some euro area countries, liquidity and cash flow effects appear to be important, whereas they appear hardly to matter in others.<sup>6</sup> The importance of the balance sheet channel may be indirectly derived by analysing cross-country differences with respect to the degree of the leverage of

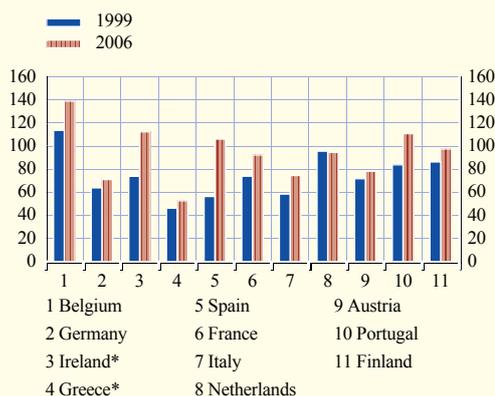
non-financial corporations or the nature of their financing sources. Chart D shows that there are differences in terms of the debt level of firms across euro area countries. In some countries, firms appear to be more sensitive to changes in interest rates, as their debt burden is relatively high from a euro area perspective.

With respect to the bank lending channel, the analysis found mixed evidence that the supply of loans has an effect on the transmission of monetary policy in a number of euro area countries. Analyses using bank micro-data have concluded that the usual indicators of the degree of asymmetric information (such as bank size) were only of minor importance for the reaction of bank loans to monetary policy in the euro area. Instead, in most euro area countries the reaction of banks to monetary policy appears to depend on their liquidity.

Overall, there is some degree of heterogeneity across countries with regard to the nature of the financing sources of firms. Banks are predominant in some countries, and capital market-based finance in others. This may reflect differences in firms' characteristics within countries (for instance, the presence of small and medium-sized enterprises, or whether firms are mostly private or public). However, this might also reflect the different possibilities for firms in terms of accessing alternative sources of external finance. In this respect, the significant changes that have occurred in the financial sector since the start of Monetary Union should be stressed.

Chart D Debt-to-GDP ratios of non-financial corporations

(1999 and 2006)



Sources: Eurostat and ECB calculations.  
Notes: Debt figures for Belgium include inter-company loans.  
\*) In the case of Greece and Ireland, the first column refers to 2001.

3 See ECB, "Differences in MFI interest rates across euro area countries", September 2006.

4 See J.B. Chatelain et al., "Firm investment and monetary transmission in the euro area", I. Angeloni, A. Kashyap and B. Mojon, *Monetary Policy Transmission in the Euro Area*, Cambridge University Press, Cambridge, 2003.

5 See also B.S. Bernanke and M. Gertler, "Inside the black box: The credit channel of monetary policy transmission", *Journal of Economic Perspectives*, 9 (4), 1995, pp. 27-48.

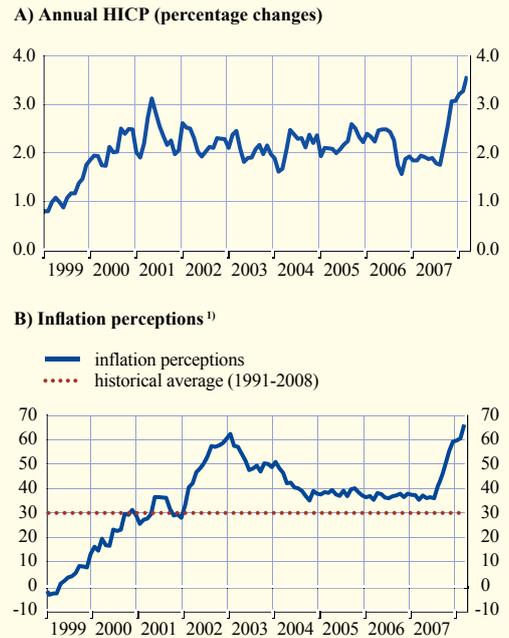
6 See Table 24.6 in I. Angeloni, A. Kashyap and B. Mojon, op. cit., and L. Gambacorta and P. E. Mistrulli, "Does Bank Capital Affect Lending Behavior?", *Journal of Financial Intermediation*, Vol. 13, No 4, 2004, pp. 436-457.

### 3.4 LOOKING AHEAD, CHALLENGES REMAIN

Since its inception, the ECB has weathered a number of challenges that stemmed predominantly from a series of substantial upside price shocks. By taking firm and timely action whenever needed, the Governing Council of the ECB has proved its ability and commitment to credibly delivering what it is expected to deliver under its mandate, namely price stability. This is also reflected in the secure and sustained anchoring of longer-term inflation expectations.

However, there is no room for complacency. While the ECB has been successful in maintaining a high degree of price stability in the euro area over now almost a full decade, average annual HICP inflation rates have remained elevated at levels that have persistently exceeded the upper limit of the ECB's definition of price stability since 2000. While this can be explained by the aforementioned series of adverse upward price shocks, the outcome does not comply with the aim of the Governing Council to keep the annual increase in HICP inflation below, but close to, 2%.

Chart 14 Measured HICP inflation and inflation perceptions in the euro area

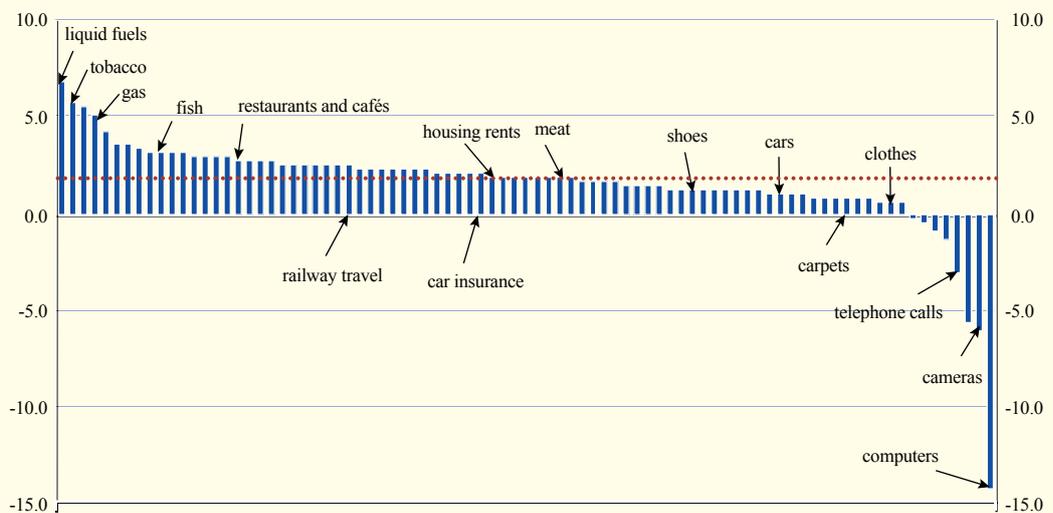


Sources: Eurostat and European Commission Business and Consumer Surveys.

1) Between 2002 and 2003 there was a strong increase in perceptions. The share of consumers considering that prices had "risen a lot" rose from 14% in 1999-2001 to 38% in 2002-2003.

Chart 15 Average annual price changes in HICP sub-indices, with selected products marked, in the period 1996-2007

(Average annual increase in HICP<sup>1)</sup>)



Source: ECB calculations based on Eurostat data.

Note: The solid line shows the average annual increase in the HICP, which was 1.9% in the period under review.

In the same vein, the ECB has faced challenging periods in which inflation expectations derived from financial market instruments, such as bond yields, temporarily rose considerably above the levels consistent with price stability over the medium term. Thus far, the ECB has been in a position to dampen inflation expectations, bringing them back again to relatively well-anchored levels in line with price stability. However, some signs are emerging that inflation expectations have been trending up recently. Thus, it cannot be excluded that they will tend to be lastingly higher nowadays than in the initial years of the single monetary policy. It is in this respect that a firm anchoring of inflation expectations remains of the essence and is given highest priority by the Governing Council.

Finally, while average actual HICP inflation rates have been broadly consistent with price stability, surveys suggest protracted divergences in the evolution of official inflation figures and inflation as perceived by the general public in the euro area (see Chart 14). A number of factors may have been behind these divergent developments. One important argument in this respect is that consumers may attach higher importance to the development of prices of goods and services that they buy more frequently. According to this view, these items have a stronger impact on consumers' inflation sentiment than the amount of money actually spent on them.<sup>13</sup>

While overall HICP inflation has, on average, been at 1.9% since 1996, there have been some quite divergent developments underlying the overall rate. Chart 15 shows the average annual percentage changes in the most detailed HICP sub-indices since 1996. It has tended to be the case that infrequently purchased durable products (e.g. computers and cars) have exhibited much lower price increases than more frequently purchased items (such as petrol and food in restaurants and cafés). Thus, explaining the differences between perceived inflation and actual inflation, and maintaining public confidence in the official inflation statistics, remains a major challenge for, in particular, the communication policy of the ECB and the Eurosystem.

Divergent developments in  
HICP components

<sup>13</sup> For further details, see the article entitled "Measured inflation and inflation perceptions in the euro area", in particular Box 1, entitled "The European Commission's survey of consumers' inflation perceptions", in the May 2007 issue of the Monthly Bulletin.

## THREE STAGES TO ECONOMIC AND MONETARY UNION (EMU)



## CONVERGENCE CRITERIA





## 4 ECONOMIC POLICY CHALLENGES AND ENLARGEMENT

*As discussed in Chapter 3, monetary policy makes its best contribution to real economic growth by maintaining price stability. While this contribution is very important, structural and fiscal policies are mainly responsible for the macroeconomic trends that are analysed in this chapter.*

*Looking back over the past decade, since the introduction of EMU the euro area has witnessed an increase of more than 15 million in the number of people employed. In the period 1990-98, the number increased by only around 5 million. These are encouraging developments, resulting from past re-structuring in the corporate sector, labour market reforms, immigration and wage moderation. However, hourly labour productivity in the euro area has been relatively low since the mid-1990s.*

*The overall assessment of fiscal policy is nuanced. On the one hand, the overall fiscal position of the euro area has improved significantly in recent years. On the other hand, some euro area countries have still to achieve and maintain sound fiscal positions and reduce government debt ratios to more sustainable levels. In this respect, the failure in many cases to consolidate public finances more rapidly in good times has been especially disappointing.*

*Cross-country differentials in real output growth and inflation are not particularly large when compared with those across US states and regions. As in any currency area, they are to a certain extent natural – for instance, if they are related to catching-up effects. However, differences may also reflect inappropriate national economic policies and structural rigidities, which should be addressed by national policy-makers.*

*This chapter also describes how the euro area has grown from originally 11 countries to now 15. Enlargement of the euro area is an irrevocable step and therefore needs to be well prepared. For any future expansion, it is crucial that convergence is achieved on a sustainable basis.*

*All in all, good progress has been made. But a lot remains to be done, and recent signs of a slowdown or even back-tracking in terms of structural reforms and fiscal consolidation are a concern, also from a monetary policy point of view. Ill-designed structural policies, economic rigidities and undisciplined fiscal policies may contribute to increased inflationary pressures or higher inflation persistence, which monetary policy would need to take into account. Economic policies and reforms that enhance competition and flexibility in goods, capital and labour markets, as well as the completion of the Single Market, promote growth and job creation, curb price pressures and hence increase welfare. Such policies also contribute to the smooth functioning of adjustment mechanisms in EMU.*

*This chapter is structured as follows. Section 4.1 covers trends in real growth, productivity and labour markets. Section 4.2 discusses fiscal policies. Section 4.3 presents some stylised facts on cross-country differentials in real output growth and inflation. Section 4.4 describes how the euro area has been enlarged from originally 11 countries to now 15. Section 4.5 summarises the policy challenges looking ahead.*

Competitive markets  
enhance resilience to shocks

Competition promotes  
growth and curbs inflation  
pressures

## 4.1 REAL EURO AREA MACRO-DEVELOPMENTS AND STRUCTURAL POLICIES

This section reviews real macroeconomic developments, as well as the main challenges to structural economic policies in the euro area. First, the relevance of structural reforms in EMU is briefly discussed. Second, output, employment and productivity growth are reviewed. Over the longer term, the structural and institutional features of the euro area economy determine to a large extent its capability to realise productivity and employment gains and to sustain strong economic growth. Third, the main structural economic policy issues and challenges in labour and product markets are assessed.

### RELEVANCE OF STRUCTURAL REFORMS IN A MONETARY UNION

Economic reforms in the goods, capital and labour markets, as well as the completion of the Single Market, aim to remove barriers to competition, increase market flexibility and allow more intense national and cross-border competition. In general, such structural reforms are very relevant to monetary policy, as they are important for mitigating inflationary pressures and inflation persistence in response to adverse shocks. More specifically, rigidities in the wage and price-setting mechanisms or ongoing excessive wage developments may delay the necessary adjustments of relative prices to economic shocks and thereby give rise to inflation persistence. Flexible and competitive markets, which would adjust smoothly to economic changes and absorb economic shocks<sup>1</sup> – also across national borders – are of particular importance in a monetary union such as the euro area, in which adjustments to national monetary and exchange rate policies are no longer available to respond to economic changes.<sup>2</sup>

Furthermore, economic reforms that remove barriers to competition not only enhance the resilience of the euro area to economic changes, but also contribute to curbing price pressures, since greater competition is generally found to exert downward pressure on costs and prices.<sup>3</sup>

In view of Europe's weak economic performance over the past decade, the European Council has launched a wide-ranging and ambitious economic reform agenda – the Lisbon Strategy for Growth and Jobs (see also Chapter 2). Among other objectives, the Lisbon Strategy aims to increase economic growth, productivity and labour utilisation in the European economy.<sup>4</sup> The Lisbon Strategy, as mentioned in Chapter 2, is a fundamental and ambitious programme to draw Europe's attention to the urgency of structural reforms. It is a comprehensive approach to reform, which aims to enhance competition and flexibility in product and labour markets. The strategy exploits the complementary and beneficial effects of economic reforms for, on the one hand, long-term growth prospects in the euro area by positively affecting labour participation and, on the other hand, labour productivity growth by promoting innovation and technological change.

In the following sub-section, macroeconomic developments relating to output, productivity and employment over the past two decades will be reviewed.

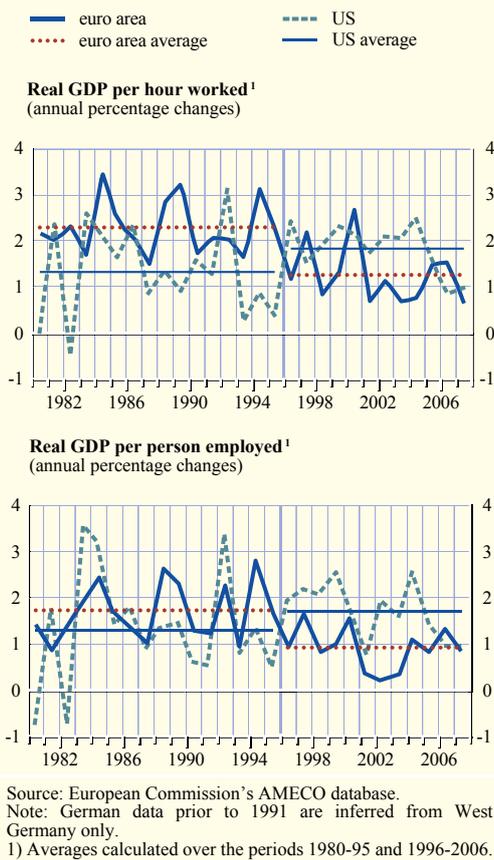
1 Smooth adjustment to shocks in the euro area is also enhanced by financial integration (see Chapter 6).

2 See N. Leiner-Killinger, V. López Pérez, R. Stiegert and G. Vitale, "Structural Reforms in EMU and the Role of Monetary Policy", ECB Occasional Paper No 66, July 2007.

3 See, for example, P. Cavelaars, "Does competition enhancement have permanent inflation effects?", *Kyklos*, Vol. 56, No 1, 2003, pp. 69-94, and M. Przybyła and M. Roma, "Does product market competition reduce inflation? Evidence from EU countries and sectors", ECB Working Paper No 453, March 2005.

4 See the European Commission's internet site ([http://ec.europa.eu/growthandjobs/index\\_en.htm](http://ec.europa.eu/growthandjobs/index_en.htm)) for further information.

Chart 1 Euro area compared with the United States



**REAL GROWTH AND PRODUCTIVITY DEVELOPMENTS IN THE EURO AREA**

Since 1996 the growth rate of the euro area has averaged 2.2% per year, almost unchanged from the average rate of growth in the period 1980-95. However, this masks two quite different trends: while employment growth has improved significantly during the last decade, average productivity growth has experienced a significant slowdown since the mid-1990s.

Growth in labour productivity is generally one of the main drivers of output growth over a longer horizon. All in all, long-term developments in the euro area are characterised by a break in the mid-1990s, following a period of prolonged growth. Between 1980 and 1995, average growth in output per hours worked in the euro area reached 2.3%, whereas output grew by 2.2%. From the mid-1990s onwards, there has been a pronounced slowdown in productivity growth. From 1996 to 2007, average productivity growth in the euro area measured as output per hours worked weakened, amounting to just 1.3% over the period (see Chart 1), while average output growth remained roughly unchanged from the previous period. The productivity slowdown has been accompanied by a pronounced increase in the annual growth rate of total hours worked. During

the period 1980-95, annual total hours worked actually declined on average by 0.2%, while between 1996 and 2007 the figure rose by 0.9% per year. In the period 1999-2007, productivity per hour grew by 1.2% on average per annum in the euro area, compared with 1.9% in the period 1990-98.

These euro area developments contrast with developments in the United States, where the rate of growth in total hours worked fell slightly from 1.4% on average over the period 1980-95 to 1.3% on average in the period 1996-2007, and the rate of growth in productivity increased significantly from 1.4% to 2.1%. Thus, in the euro area, higher growth in employment and hours worked has been offset by losses in productivity growth, leaving the rate of output growth roughly unchanged. In contrast, productivity gains in the United States more than compensated for the deceleration in labour input, giving rise to strengthened output growth.

A sectoral analysis shows that productivity growth has declined, especially in market services that make more intensive use of information and communication technologies (ICT), such as those provided by the distribution, financial and business services sectors<sup>5</sup>. At the same time, while productivity in these sectors significantly accelerated in the United States, it lost steam in the euro

**Strong employment growth, but weak productivity growth**

**Modest productivity gains in market services**

5 See the article entitled "Productivity developments and monetary policy" in the January 2008 issue of the Monthly Bulletin, which provides a detailed analysis of productivity developments in the euro area.

area. This suggests that the weak productivity growth in the euro area is related to the fact that firms do not seem to have exploited the benefits of the new ICTs. These technologies exert the largest impact on productivity growth by sparking efficiency gains in managerial processes, procedures and organisational structures, and by facilitating complementary technological innovations. For instance, computers and the internet reduce communication costs and allow more flexible and decentralised organisational structures. However, the full benefits of the productivity acceleration brought by ICTs can only be reaped if there are no obstacles, such as regulatory restrictions, to organisational change. In line with this hypothesis, a few studies find that highly regulated environments tend to be associated with lower investment and productivity growth.<sup>6</sup> These studies point to institutional rigidities that reduce the capacity of firms to adjust, smoothly and quickly, to their new environments as important determinants of productivity growth in the euro area economies.

#### LABOUR MARKETS IN THE EURO AREA

Labour utilisation, defined as the total number of annual hours worked divided by the total population, increased over the period 1999-2007 by 0.2% per year on average in the euro area.<sup>7</sup> This reflects the expansion in labour market participation and employment. The participation rate stood at 67.2% in 1999, increasing to almost 71% by 2007. Most importantly, since the beginning of EMU in 1999, the euro area has witnessed an increase of more than 15 million in the number of people employed, whereas between 1990 and 1998 the number increased by only around 5 million. In the period 1999-2007, the overall employment rate increased from 60.3% to 65.5%. The expansion in employment is most visible in terms of increased employment among women and older workers, as well as in temporary and part-time employment (see Table 1). These developments reflect the impact of past economic reforms, immigration and wage moderation. Nevertheless, the overall employment rate in the euro area remains low compared with 73.3% in the United States (2007), and is still far from the Lisbon target of 70% for 2010.

6 See, for example, A. Alesina, S. Ardagna, G. Nicoletti and F. Schiantarelli (2005), "Regulation and investment", Journal of the European Economic Association, Vol. 3, pp. 791-825, in which the authors find that regulatory reforms have had a significant positive impact on capital accumulation in the transport, communication and utilities sectors, especially in the long run. In G. Nicoletti and S. Scarpetta (2003), "Regulation, productivity and growth", Economic Policy, April, the authors find that various anti-competitive product market regulations significantly reduce total factor productivity growth at industry level.

7 For a review of the structural developments in the euro area labour markets over the last ten years, see the article entitled "Developments in the structural features of the euro area labour markets over the last decade" in the January 2007 issue of the Monthly Bulletin.

Table 1 Key labour market statistics

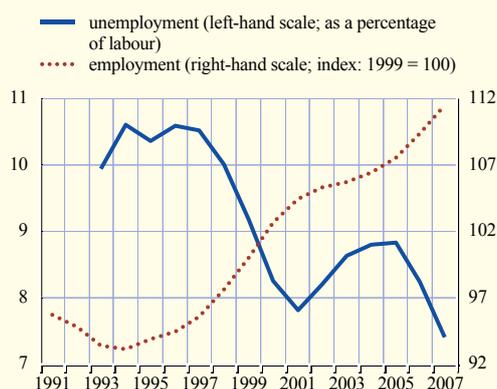
	Average 1998-2007	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Employment growth	1.70	-	2.2	2.2	1.6	0.9	1.0	0.6	2.5	2.0	2.7
Total hours worked <sup>1)</sup>	0.90	-	0.0	1.9	2.5	1.2	-0.9	0.0	0.6	1.1	1.3
Employment rate (age 15-64)	62.50	59.1	60.3	61.4	62.0	62.4	62.7	62.8	63.9	64.8	65.5
Female	53.40	48.6	50.1	51.5	52.2	52.9	53.8	54.3	55.8	56.8	57.8
Male	71.60	69.6	70.5	71.4	71.9	71.8	71.6	71.3	71.9	72.7	73.2
Age 15-24	36.49	34.1	35.6	37.0	37.2	37.1	36.8	36.2	36.6	37.0	37.3
Age 25-54	76.30	73.2	74.4	75.5	76.0	76.2	76.4	76.6	77.4	78.4	79.1
Age 55-64	37.30	33.3	33.6	34.0	34.7	36.1	37.5	38.3	40.5	41.8	43.4
Unemployment rate (age >15) <sup>2)</sup>	8.60	10.0	9.1	8.20	7.8	8.2	8.7	8.8	8.9	8.3	7.5
Participation rate (age 15-64)	68.70	66.6	67.2	67.6	67.5	68.1	68.8	69.2	70.1	70.6	70.8
Temporary ratio (age 15-64)	15.44	14.3	14.9	15.4	15.1	14.8	14.8	15.3	16.2	16.8	16.8
Part-time ratio (age 15-64)	17.10	15.4	15.9	16.2	16.0	16.1	16.5	17.5	18.7	19.3	19.3

Sources: Eurostat (Labour Force Survey) and ECB calculations.

1) Data refer to euro area 12.

2) Averages of monthly data.

Chart 2 Employment and unemployment in the euro area in the period 1991-2007



Sources: EUROSTAT and ECB calculations.

At the same time, unemployment among persons aged 15-64 declined – from 9.1% in 1999 to 7.5% in 2007 – to its lowest level for 25 years (see Chart 2). Unemployment rates declined particularly among the young (from 23.9% to 16.6%), women (from 12.7% to 9.4%) and, by educational level, the low-skilled (from 13.3% to 9.9%).<sup>8</sup>

These are encouraging developments, which show that past labour market reforms, immigration and wage moderation have helped to overcome some of the constraints on growth stemming from rigid and over-regulated labour markets. It also confirms that monetary policy geared towards price stability is fully consistent with job creation and low unemployment. However, despite this progress,

most euro area countries are still far from having exhausted the potential for further increases in participation rates and employment. Structural impediments emerging from rigid legal and regulatory environments, high taxes on labour and distortions associated with regulations such as minimum wages still prevent or discourage many people from actively participating in the labour market and thus keep employment rates low and unemployment high.

Empirical evidence points to employment protection legislation and tax wedges as important obstacles to employment performance.<sup>9</sup> Over the last decade, euro area countries have, on average, made progress in increasing the incentives to work, particularly by reducing both disincentives to work longer and the financial incentives to retire early. For the period 2001-06, tax wedges, which capture the amount of income tax paid plus employee and employer social security contributions, have declined for various groups (see Table 2). By contrast, euro area countries have, on average,

8 Source: Eurostat (Labour Force Survey).

9 See also the article entitled “Developments in the structural features of the euro area labour markets over the last decade” in the January 2007 issue of the Monthly Bulletin.

Table 2 Development of tax wedges and the unemployment trap in the euro area in the period 2001-06

(percentage points)

	Level in 2006	Change over 2001-06
Tax Wedges <sup>1)</sup>		
Single Earner	38.2	-0.6
One earner, married couple	32.1	-0.3
Two earners	33.4	-0.7
Unemployment trap <sup>2)</sup>	78.3	2.6
Low wage trap <sup>3)</sup>	48.3	4.7

Sources: OECD (2007), “Taxing wages 2006-2007”. Eurostat Structural indicators database 2008; unweighted averages. Data only available for 2001-06.

1) The tax wedge captures income tax plus employee and employer social security contributions less cash benefits as a percentage of labour costs. The figures for a single person without children with 67% of the average worker wage, for a one-earner married couple with two children aged 4 and 6 at 100% of the average worker wage and a two-earner married couple with two children, where one earner has 100% of the average worker wage and the other 33%.

2) The “unemployment trap” is defined as the percentage of gross earnings taxed away through higher taxes and social security contributions, as well as the benefit withdrawal when an unemployed person takes up a job. It is measured here for a single person without children with 67% of the average earnings of a full-time production worker in the manufacturing industry.

3) The “low wage trap” is defined as the percentage of gross earnings taxed away by higher taxes and reduced benefits when taking up a higher paid job. It is measured here for a single person without children, moving from 33% to 67% of the average earnings of a production worker.

Despite these important improvements ...

... there are still obstacles to full employment

been comparably less successful in increasing the incentives for the unemployed to take up work opportunities.

**Lower taxes on labour support employment**

In this regard, net replacement rates<sup>10</sup> increased between 2001 and 2005. At the same time, the indicator of the so-called “unemployment trap”, which measures the amount of taxes and the withdrawal of government transfers when an unemployed person takes up a job, also increased significantly to a level of 78.3% of gross income in 2006 (see Table 2 for details). Further reforms in income tax and benefit systems would help to increase incentives to work. Reducing disincentives to work, such as high marginal tax rates, high unemployment benefits and encouraging people to work longer, can stimulate the labour supply and employment of all workers, particularly those with a generally more tenuous attachment to the labour market, such as women and younger and older workers.

**But there is still progress to be made**

All in all, while some progress has been made over the past decade, in many euro area countries there still seems to be a long way to go to implement reforms that ensure employment rates in line with the best-performing countries. The euro area is still far from exhausting the growth potential of a more intense use of labour in the production process. In many countries the labour market still features an “insider-outsider” characterisation, with structural impediments – owing to the legal and regulatory environment, high taxes on labour and rigidities associated with wage regulations – creating obstacles for certain groups to participate actively in the labour market.

**Wage flexibility and prudent market competition support job creation**

A high degree of labour market flexibility would help national labour markets to adjust to economic shocks and would facilitate the efficient allocation of labour and other resources. Sufficient wage differentiation would improve employment opportunities for less-skilled workers and in regions or sectors with high unemployment. Furthermore, empirical evidence points to the significant potential of labour and product markets to cross-fertilise: deregulating labour markets would generate higher employment growth, especially when product markets are more competitive, and vice versa.<sup>11</sup> This leads to the issue of efficient and well-functioning product markets as a second prerequisite for higher potential growth in the euro area.

## COMPETITION AND INNOVATION IN PRODUCT MARKETS

**Increasing economic integration**

In the European Union, progress has been made in strengthening competition and increasing economic integration over the last two decades. In particular, the Single Market has brought major benefits for the EU’s economy. According to a European Commission estimate, the Single Market created 2.75 million jobs and led to an increase in welfare of around €500 per head in 2006, which corresponds to a 2.15% increase in the EU’s GDP over the period 1992-2006.<sup>12</sup>

**Increasing competition, deregulation and liberalisation**

Increasing product market competition – at EU and national levels – gives rise to more efficient production structures. The empirical literature generally finds that competition in markets is an important factor in explaining both labour productivity and relative price developments. Deregulation and liberalisation contribute to higher levels and rates of growth in labour productivity.<sup>13</sup> For instance, the benefits of opening up network industries to competition can be seen in the telecommunications sector. Hourly labour productivity in this particular sector saw a

10 Net replacement rates measure the amount of benefits – comprising unemployment benefits, social assistance, and family and housing benefits – net of taxes as a ratio to the net wage income that the worker or household obtained before unemployment.

11 See, for example, H. Berger and S. Danninger (2007), “The employment effects of labor and product market deregulation and their implications for structural reform”, International Monetary Fund Staff Paper Vol. 54, No 3.

12 European Commission, “The single market: review of achievements”, November 2007.

13 See P. Conway, D. De Rosa, G. Nicoletti and F. Steiner (2006), “Regulation, Competition and Productivity Convergence”, OECD Economics Department Working Paper No 509, and the literature quoted therein.

significant acceleration from 4.5% to 7.3% in the periods 1980-95 and 1995-2005, and telephone prices charged by the former monopolies for national and international calls fell by more than 40%, on average, in Europe between 2000 and 2006. This boosted the purchasing power of consumers, who now have more of their income available to spend on other goods and services.

However, much remains to be done, particularly in some areas of market services, which account for around 70% of the euro area's total nominal value added and total employment.<sup>14</sup> A broader and deeper EU internal market clearly remains a priority in the pursuit of effective competition in the energy market and the implementation of the Services Directive<sup>15</sup>. The growing economic importance of services suggests that improvements in European living standards are, to a great extent, likely to depend on a high degree of competition and on productivity improvements in the services sector.

In order to exploit the productivity potential fully, product market reforms need to be accompanied by policies that support innovation and technological change. These include the unlocking of business potential by creating an entrepreneur-friendly economic environment, measures to support innovation through higher investment in research and development (R&D), and policies geared towards improving human capital.

An entrepreneur-friendly economic environment would imply fewer and more efficient regulations, particularly helping small and medium-sized enterprises to develop at home and across borders, as well as positive action to ease access to the finance that these enterprises need. Europe is still lagging behind in this field. For instance, venture capital financing in Europe is only a fraction of what it is in the United States relative to the size of each economy. The promotion of R&D investment is also a major issue. In 2005 R&D investment amounted to 1.9% of euro area GDP, compared with 2.7% in the case of the United States.

In addition to structural reforms, stability-oriented fiscal policies are a pre-condition for the smooth functioning of EMU. The next section considers fiscal policy issues.

## 4.2 FISCAL POLICIES

This section recalls the importance of sound public finances. It also provides an overview of fiscal developments before and during Stage Three of EMU, the implementation of the Stability and Growth Pact, and medium to longer-term fiscal challenges (see Chapter 2 for details of the institutional framework for fiscal policies in EMU).

Fiscal policies can have a significant impact on economic growth and inflationary pressures through the level and composition of government revenue and expenditure, as well as budget deficits and public debt.<sup>16</sup> High deficits can give rise to demand and inflationary pressures, potentially forcing the monetary authority to keep short-term interest rates at a higher level than would otherwise be necessary. Fiscal may also undermine confidence in a stability-oriented monetary policy if private agents come to expect

14 For a detailed analysis of the degree of competition in the euro area services sector and its effects on labour productivity and prices, see the article entitled "Competition and economic performance of the euro area services sector" in the May 2008 issue of the Monthly Bulletin.

15 The Directive on services in the internal market, which aims to bolster the freedom of EU companies to establish themselves in other Member States and the free movement of services, was adopted by the European Parliament and the Council in December 2006 and must now be transposed by the Member States into national law by the end of 2009.

16 See the article entitled "Fiscal policy influences on macroeconomic stability and prices" in the April 2004 issue of the Monthly Bulletin.

Greater competition in  
services remains key

Stability-oriented fiscal  
policies are essential to EMU

that excessive government borrowing will ultimately be accommodated by the central bank. Sound and sustainable fiscal policies are therefore a pre-condition for sustainable economic growth and a smooth functioning of monetary union, including the avoidance of imbalances across countries (see Section 4.3).

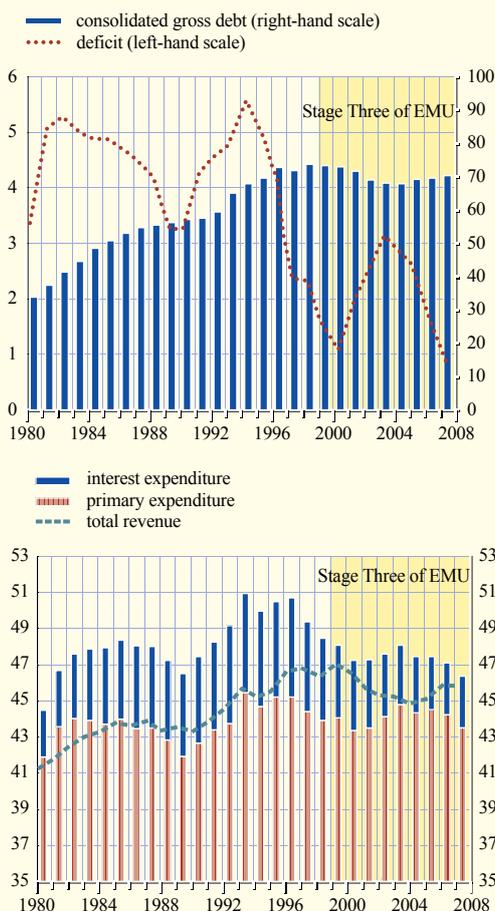
A number of institutional arrangements have been established at EU level in order to ensure appropriate medium-term-oriented national fiscal policies and sustainable public finances in EMU. In particular, Member States adopting the euro are obliged by the Treaty on European Union to avoid excessive government deficits. These are assessed against reference values of 3% and 60% of GDP for general government deficit and debt ratios respectively. Furthermore, the Stability and Growth Pact, adopted in 1997 and revised in 2005, obliges EU Member States to pursue appropriate “close to balance or in surplus” budgetary objectives over the medium term. Countries with such positions should have room to allow the operation of the “automatic fiscal stabilisers” without breaching the 3% deficit ceiling, thereby mitigating the impact of the business cycle and contributing to the smooth functioning of EMU.<sup>17</sup>

#### FISCAL DEVELOPMENTS IN THE EURO AREA BEFORE AND DURING STAGE THREE OF EMU

In the decades preceding EMU, fiscal policies in many European countries were characterised by unsustainable rates of spending growth, rising tax burdens and the steady build-up of government debt. During the 1980s and early 1990s, the euro area general government deficit ratio was, on average, in the range of 4-5% of GDP and the government debt-to-GDP ratio rose from below 40% to around 70% (see Chart 3 and Table 3). Since then, the aggregate fiscal position of the euro area countries has improved markedly. Notably, in the run-up to Stage Three of EMU, government borrowing fell significantly and, by 2000, the deficit ratio (net of proceeds from the sale of UMTS licences) reached a low of 1% of GDP. The euro area government deficit ratio increased again, reaching 3.1% of GDP in 2003, but thereafter an improvement has seen it decline to 0.6% of GDP in 2007, its lowest level since the early 1970s.

**Chart 3 Euro area general government fiscal developments in the period 1980-2007**

(as a percentage of GDP)



Sources: European Commission, NCBs and ECB calculations.  
Note: Data exclude proceeds from the sale of Universal Mobile Telecommunications System (UMTS) licences.

Fiscal positions have improved ...

<sup>17</sup> See the article entitled “EMU and the conduct of fiscal policies” in the January 2004 issue of the Monthly Bulletin.

Table 3 General government budget balances in euro area countries in the period 1990-2007

(as a percentage of GDP)

	1990-1998	1999-2007	1999	2000	2001	2002	2003	2004	2005	2006	2007
Belgium	-5.0	-0.2	-0.5	0.1	0.4	0.0	0.0	0.0	-2.3	0.3	-0.2
Germany	-	-2.4	-1.5	-1.1	-2.8	-3.7	-4.0	-3.8	-3.4	-1.6	0.0
Ireland	-	1.6	2.7	4.7	0.9	-0.6	0.4	1.4	1.6	3.0	0.3
Greece	-	-4.5	-3.4	-3.7	-4.9	-4.7	-5.6	-7.4	-5.1	-2.6	-2.8
Spain	-	0.1	-1.4	-1.1	-0.6	-0.5	-0.2	-0.3	1.0	1.8	2.2
France	-	-2.6	-1.8	-1.5	-1.6	-3.2	-4.1	-3.6	-2.9	-2.4	-2.7
Italy	-	-2.9	-1.7	-2.0	-3.1	-2.9	-3.5	-3.5	-4.2	-3.4	-1.9
Cyprus	-	-2.7	-4.3	-2.3	-2.2	-4.4	-6.5	-4.4	-2.4	-1.2	3.3
Luxemburg	-	2.3	3.4	6.0	6.1	2.1	0.5	-1.2	-0.1	1.3	2.9
Malta	-	-5.3	-7.7	-6.2	-6.4	-5.5	-9.8	-4.6	-3.2	-2.5	-1.8
Netherlands	-3.0	-0.5	0.4	1.3	-0.2	-2.0	-3.1	-1.7	-0.3	0.5	0.4
Austria	-	-1.5	-2.2	-2.1	0.0	-0.6	-1.4	-3.7	-1.5	-1.5	-0.5
Portugal	-	-3.6	-2.8	-3.2	-4.3	-2.9	-2.9	-3.4	-6.1	-3.9	-2.6
Slovenia	-	-2.4	-3.1	-3.8	-4.5	-2.5	-2.7	-2.3	-1.5	-1.2	-0.1
Finland	-	3.9	1.6	6.9	5.0	4.1	2.6	2.4	2.9	4.1	5.3
Euro Area	-	-1.9	-1.4	-1.0	-1.9	-2.5	-3.1	-2.9	-2.5	-1.3	-0.6

Sources: European Commission, NCBs and ECB calculations.

Notes: Figures for the periods 1990-98 and 1999-2007 are annual averages. Germany data for 1990 refer to West Germany. Data exclude proceeds from the sale of universal mobile telecommunications system (UMTS) licences.

The lower euro area government deficit ratios of recent years can be attributed, in large part, to a significant decline in interest rates and thus in the burden of interest payments, which have fallen from around 5.5% of GDP in the early 1990s to slightly less than 3% of GDP since 2005. Beyond this, an assessment of the relative contributions of government revenues and primary expenditure to fiscal consolidation is complicated by the responsiveness of these variables to cyclical developments. Looking at longer trends, the ratio of primary government spending to GDP in the euro area has remained broadly constant since the mid-1980s, whereas the revenue-to-GDP ratio witnessed a structural increase prior to Stage Three of EMU. Since 1999, both the government revenue and primary expenditure-to-GDP ratios have fluctuated around high but broadly constant levels, indicating that the trend towards ever higher government spending and revenue ratios of previous decades has come to a halt.

The improvement in the aggregate euro area fiscal position over the past two decades reflects a significant degree of convergence towards sustainable public finances among the participating countries. Notably, the very high budget deficits observed in some countries in the 1980s and early 1990s have largely been eliminated. In the high debt countries in particular, the interest burden has fallen considerably on account of the much lower interest rates now being paid on outstanding government debt. This can be seen largely as a benefit resulting from the elimination of exchange rate risk and the transition to more stability-oriented macroeconomic policies in EMU.<sup>18</sup> However, this implies that primary deficit measures have improved less. Moreover, there has been only a limited improvement in government debt-to-GDP ratios, and the fact that some euro area member countries still have debt ratios well above the reference value of 60% of GDP in 2007 (see Table 4) is a cause for concern.

... largely owing to lower interest payments

Further reductions in some debt-to-GDP ratios needed

18 See the article entitled "Fiscal policies and financial markets" in the February 2006 issue of the Monthly Bulletin.

**Table 4 Euro area general government fiscal positions in the period 1990-2007**

(as a percentage of GDP)

	Debt				Primary expenditure				Interest expenditure			
	1990-1998	1999-2007	1998	2007	1990-1998	1999-2007	1998	2007	1990-1998	1999-2007	1998	2007
Belgium	127.0	98.8	117.1	84.6	42.9	44.4	43.0	44.9	9.6	5.4	7.4	3.9
Germany	n.a.	63.3	60.3	65.0	n.a.	44.1	44.7	41.1	n.a.	2.9	3.4	2.8
Ireland	n.a.	32.4	54.0	25.5	n.a.	32.4	31.1	35.4	5.8	1.4	3.3	0.9
Greece	n.a.	100.5	105.8	94.5	n.a.	39.6	41.0	39.4	n.a.	5.5	8.5	3.9
Spain	n.a.	49.3	64.1	36.2	n.a.	36.4	36.9	37.2	4.5	2.4	4.2	1.6
France	48.7	61.5	59.4	64.2	49.8	49.8	49.4	50.0	3.2	2.8	3.3	2.6
Italy	n.a.	106.9	114.9	104.0	n.a.	42.7	41.3	43.8	n.a.	5.4	7.9	4.7
Cyprus	n.a.	64.0	58.4	59.8	n.a.	37.9	33.7	40.0	3.1	3.3	3.1	3.1
Luxembourg	n.a.	6.4	7.4	6.8	n.a.	39.6	40.6	37.3	n.a.	0.2	0.4	0.2
Malta	n.a.	63.8	53.4	62.6	n.a.	40.4	39.8	39.3	2.6	3.5	3.2	3.3
Netherlands	74.6	51.8	65.7	45.4	46.7	43.0	42.0	43.8	5.6	2.8	4.7	2.2
Austria	n.a.	64.1	64.3	59.1	n.a.	47.7	50.0	45.6	n.a.	3.0	3.5	2.6
Portugal	56.5	57.5	52.1	63.6	n.a.	42.4	39.5	42.9	n.a.	2.8	3.3	2.9
Slovenia	n.a.	26.8	23.1	24.1	n.a.	44.6	44.1	41.9	2.3	1.9	2.3	1.4
Finland	n.a.	41.9	48.2	35.4	n.a.	47.2	49.0	46.1	n.a.	2.0	3.5	1.4
Euro area	n.a.	69.0	72.8	66.4	n.a.	44.0	44.0	43.3	n.a.	3.4	4.6	3.0

Sources: European Commission, NCBs and ECB calculations.

Notes: Data exclude proceeds from the sale of universal mobile telecommunications system (UMTS) licences. Germany data for 1990 refer to West Germany.

## IMPLEMENTATION OF THE STABILITY AND GROWTH PACT

The EMU fiscal rules have faced challenges

The implementation of the EMU fiscal surveillance framework has faced many challenges related to fiscal developments in euro area countries since 1999. While several member countries have managed to reach and/or maintain “close to balance or in surplus” fiscal positions as prescribed by the “preventive arm” of the Stability and Growth Pact (i.e. the procedures that aim to prevent the emergence of excessive deficits), others have failed to do so. In some countries, medium-term budgetary targets set in annual stability programmes have been regularly missed owing to over-optimistic macroeconomic and fiscal assumptions, a lack of consolidation efforts and expenditure overruns partly reflecting a lack of political will to abide by commitments.

Consequently, during the economic downturn of 2001-03, deficits in several countries (Germany, Greece, France, Italy, the Netherlands and Portugal) reached or exceeded the 3% of GDP reference value (see Table 3). In this context, views were split on the appropriate implementation of the “corrective arm” of the Pact (i.e. the procedures that aim to ensure a rapid correction of excessive deficits). This culminated in a decision by the ECOFIN Council in November 2003 to suspend the excessive deficit procedures against Germany and France. Discussions followed that led to a reform of the Pact, which was concluded in spring 2005 (see Chapter 2).

Overall implementation could be improved

Since 2005, the implementation of the reformed Stability and Growth Pact has been facilitated by the onset of more favourable economic conditions and particularly buoyant government revenue growth. As a result, budget deficits have been brought back to 3% of GDP or less in all euro area countries. However, considerable differences remain in terms of the extent to which “good times” have been used to speed up fiscal consolidation. For example, while higher tax revenues led to Germany achieving a balanced budget in 2007, in France and Italy revenue windfalls have been largely used to increase spending or cut taxes. Consequently, these countries’ deficits remain relatively close to 3% of GDP, leaving little or no fiscal room for manoeuvre in the event of a downturn. Overall, therefore, the implementation of the Pact, even since its reform, can be described as being only a mixed success, and the real test is still to come.

## MEDIUM TO LONGER-TERM FISCAL CHALLENGES

The failure of many euro area countries to achieve more rapidly or maintain sound fiscal positions and to reduce government debt ratios is of particular concern in view of the future fiscal challenges posed by ageing populations. According to the latest estimates by the European Commission and the EU's Economic Policy Committee, government spending on pensions, health and long-term care is projected to increase by 4.7% of GDP between 2004 and 2050 for the euro area as a whole, with estimates for some countries being significantly higher than this.<sup>19</sup> Only a relatively small proportion of this additional spending is expected to be offset by lower spending on unemployment benefits and education. More recent estimates by the OECD suggest that the age-related fiscal burden may be even higher than previously assumed, especially in the field of health and long-term care (see Table 5).<sup>20</sup> In most countries, fiscal consolidation alone is clearly not sufficient to address such challenges, and further systemic and/or parametric reforms, especially of pension systems, are also necessary.<sup>21</sup>

Beyond this, improving the quality of public finances to promote economic growth remains a key challenge for euro area countries. Reforms to tax and benefit systems can support higher employment and productivity growth. Moreover, prioritising and increasing the efficiency of public spending could create room to alleviate the still high tax burdens in many member countries.<sup>22</sup>

Stability-oriented fiscal policies are a pre-condition for sustainable economic growth and the smooth functioning of Monetary Union, as well as for avoiding unnecessary differentials across countries. The next section will present some stylised facts on cross-country differentials in real output growth and inflation.

19 See European Commission (2006), "The long-term sustainability of public finances in the European Union", European Economy No 4.

20 See OECD Economic Outlook, June 2007.

21 See the article entitled "Demographic change in the euro area: projections and consequences" in the October 2006 issue of the Monthly Bulletin. See also A. Maddaloni, A. Musso, P. C. Rother, M. Ward-Warmedinger and T. Westermann, "Macroeconomic implications of demographic developments in the euro area", ECB Occasional Paper No 51.

22 See the article entitled "The importance of public expenditure reform for economic growth and stability" in the April 2006 issue of the Monthly Bulletin.

**Table 5 Projected changes in selected age-related expenditure-to-GDP ratios between 2004 and 2050<sup>1)</sup>**

	Pensions (1)		Health (2)		Long-term care (3)		Total (1+2+3)	
	EC/EPC	OECD	EC/EPC	OECD	EC/EPC	OECD	EC/EPC	OECD
Belgium	5.1	5.1	1.4	3.3	0.9	1.9	7.4	10.3
Germany	1.7	2.0	1.2	3.6	1.0	1.9	3.9	7.5
Ireland	6.4	6.5	2.0	4.0	0.6	3.8	9.0	14.3
Greece	-	3.9	1.7	3.9	-	2.7	1.7	10.5
Spain	7.1	7.0	2.2	4.1	0.5	2.4	9.8	13.5
France	2.0	2.1	1.8	3.5	0.2	1.7	4.0	7.3
Italy	0.4	0.4	1.3	3.8	0.7	2.9	2.4	7.1
Cyprus	12.9	n.a.	1.1	n.a.	n.a.	n.a.	14.0	n.a.
Luxembourg	7.4	7.4	1.2	1.4	0.6	3.1	9.2	11.9
Malta	-0.4	n.a.	1.8	n.a.	0.2	n.a.	1.6	n.a.
Netherlands	3.5	3.8	1.3	3.8	0.6	2.0	5.4	9.6
Austria	-1.2	-1.0	1.6	3.8	0.9	2.0	1.3	4.8
Portugal	9.7	9.3	0.5	4.2	0.4	2.0	10.6	15.5
Slovenia	7.3	n.a.	1.6	n.a.	1.2	n.a.	10.1	n.a.
Finland	3.1	3.3	1.4	3.6	1.8	2.4	6.3	9.3
<b>Euro area<sup>2)</sup></b>	<b>2.6</b>	<b>3.0</b>	<b>1.5</b>	<b>3.7</b>	<b>0.6</b>	<b>2.2</b>	<b>4.7</b>	<b>8.9</b>

Sources: Economic Policy Committee, Ageing Working Group, January 2006 and OECD (2007) Economic Outlook.

Note: n.a. = not available.

1) Small expenditure reductions may be expected owing to lower spending on education and unemployment.

2) Excluding Greece, Cyprus, Malta and Slovenia.

### 4.3 CROSS-COUNTRY DIFFERENTIALS

The overall macroeconomic developments of the euro area, described also in Section 4.1, mask some diversity across the euro area countries. This section addresses such diversity, first, in terms of differentials in real GDP and, second, in terms of price and cost developments across the euro area countries.<sup>23</sup>

Macroeconomic differentials are natural in a currency union

Some differentials in real output growth and inflation in the euro area, as in any currency union, are natural, for instance those related to catching-up effects, occurring when a country's income level is catching up with those of other more developed countries in the monetary union. Other differentials may present some challenges if protracted. For example, such differences may reflect inappropriate national economic policies, structural rigidities or malfunctioning adjustment mechanisms in individual countries, which should be addressed by national policy-makers. Differentials that are due to a lack of cross-border trade and integration must be addressed by fully implementing the Single Market. In order to avoid a situation where a country or a region in the euro area – after suffering a country or region-specific shock – enters either a period of protracted low growth and high unemployment or a long period of overheating, efficient adjustment mechanisms need to be in place. The ECB's single monetary policy cannot directly address growth and inflation differentials, rather it contributes to the smooth functioning of EMU by maintaining price stability in the euro area as a whole.

#### DEVELOPMENTS IN REAL GDP GROWTH ACROSS EURO AREA COUNTRIES

Output growth differentials in the euro area are moderate

The current degree of differences in output growth across the euro area countries is not large by either historical standards or comparison with other large currency areas.

As can be seen from Chart 4, the dispersion of real GDP growth rates across the group of 12 countries that formed the euro area in 2001, measured by the standard deviation in unweighted terms, has been fluctuating around 2 percentage points and has shown no apparent upward or downward trend over the past 35 years.

The current degree of output growth dispersion within the euro area does not appear to differ significantly from that observed across regions or states within the United States (see Chart 4).<sup>24</sup>

The growth differentials are persistent ...

Looking at developments in individual countries (see Table 6), growth rates in some countries have persistently been above the euro area average since the early 1990s. More generally, differentials in real GDP growth across the euro area countries have largely reflected lasting trend growth differences and, to a lesser extent, cyclical differences. In contrast, the degree of business cycle synchronisation across the euro area countries seems to have increased since the beginning of the 1990s.

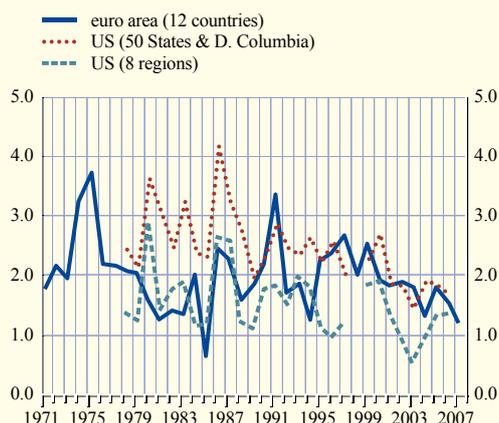
Reasons for protracted output growth differentials in the euro area may be related, for instance, to structural policies (including the design of institutions), different evolutions in supply factors and convergence processes, as well as the combination of country-specific shocks and the working of adjustment mechanisms.

23 See the article entitled "Output growth differentials in the euro area: sources and implications" in the April 2007 issue of the Monthly Bulletin.

24 For a comprehensive review of the evidence on output growth differentials, see N. Benalal, J. L. Diaz del Hoyo, B. Pierluigi and N. Vidalis, "Output growth differentials across the euro area countries: some stylised facts", ECB Occasional Paper No 45, 2006.

Chart 4 GDP growth dispersion across euro area countries and US regions and states

(unweighted standard deviation, percentage points)



Sources: European Commission and US Bureau of Economic Analysis.  
Note: There is a break in the two US series in the period 1997-99 (no data are available for 1998).

Table 6 GDP growth rates across euro area countries

(average annual percentage changes)

	1980-1989	1990-1998	1999-2007
Euro area	2.3	2.0	2.2
Belgium	2.2	3.4	2.3
Germany	2.0	2.3	1.5
Ireland	3.1	6.7	6.4
Spain	2.7	2.5	3.8
Greece	0.8	1.7	4.1
France	2.5	1.7	2.1
Italy	2.6	1.4	1.4
Cyprus	-	4.5	3.7
Luxembourg	4.6	4.4	5.2
Malta	-	4.8	2.4
Netherlands	1.7	3.0	2.3
Austria	2.0	2.5	2.3
Portugal	3.4	2.8	1.7
Slovenia	-	1.4	4.4
Finland	3.6	1.3	3.4

Sources: Eurostat and European Commission.  
Note: 2007 data are European Commission estimates (autumn 2007 forecasts).

Output growth differentials may partly reflect a long-lasting catching-up process of lower-income countries. Among the low-income group of euro area countries in the 1980s, Ireland, Greece and Spain have subsequently made considerable progress, whereas GDP per capita relative to the euro area in Portugal has fallen since the euro changeover. Ireland already attained the euro area average in the late 1990s and has even gone well beyond it in recent years.

... partly due to catching-up and adjustment rigidities ...

The presence of persistent output growth differences may, to some extent, reflect the long-lasting impact of economic shocks and structural policies. There is little evidence that any of the major common shocks over recent years has, by itself, been a relevant factor in persistent real GDP growth differentials. In contrast, the available empirical literature shows that country-specific shocks and policy changes, such as fiscal policies and structural reforms, have played a greater role in generating output growth differentials in recent years than common shocks, and that the effects of those factors can be highly persistent.<sup>25</sup>

... but also to fiscal and structural policies

The slow functioning of adjustment mechanisms can further reinforce output growth differentials stemming from country-specific shocks. In a monetary union such as the euro area, with a single currency and a single monetary policy, the main adjustment mechanism – in the absence of a high degree of labour mobility and fiscal transfers across countries – is the cross-border trade or competitiveness channel.<sup>26</sup> An additional channel of a somewhat different nature is the “risk-sharing channel”.<sup>27</sup> Available evidence shows that the competitiveness channel appears, as a result of structural rigidities and a lack of full implementation of the Single Market, to require a relatively long period to work through in the euro area. This implies that in response to asymmetric shocks,

25 Recent analyses of this issue are provided in D. Giannone and L. Reichlin, “Trends and cycles in the euro area: how much heterogeneity and should we worry about it?”, ECB Working Paper No 595, 2006, and in A. Buisán and F. Restoy, “Cross-country macroeconomic heterogeneity in EMU”, Banco de España Occasional Paper No 0504, 2005.

26 The competitiveness channel works as follows: following a wage shock, or a shock that drives a country’s output above its potential, domestic inflationary pressures – on wages and other domestic costs – will give rise to a deterioration in external competitiveness. This will, in turn, gradually reduce foreign demand for the country’s exports, such that lower external demand will tend to restore output to its potential level and to dampen previous inflationary pressures.

27 In essence, this mechanism implies that consumption need not follow movements in output because consumers can borrow abroad.

larger price and inflation differentials, as well as higher regional unemployment, may be observed than would be the case with a higher degree of cross-border competition and economic integration.

### INFLATION AND LABOUR COST GROWTH DIFFERENTIALS ACROSS EURO AREA COUNTRIES

The process of real convergence has been accompanied by a declining dispersion of inflation and labour cost growth within the euro area. Inflation differentials have diminished across the euro area countries and are currently at levels similar to those observed within the United States. Inflation dispersion may be due to equilibrium adjustments and price level convergence. However, they may also be due to structural rigidities and excessive wage growth, and thus could, if protracted, lead to losses in competitiveness with adverse effects on output and employment.

Overall euro area inflation declined

Since the 1990s, the degree of inflation dispersion in the group of 12 countries that formed the euro area in 2001 has been characterised by a strong downward trend, which has stabilised from 1998 onwards (see Chart 5).

Inflation differentials are modest

Drawing a comparison with the United States, a long-standing monetary union, Chart 5 shows that the dispersion of inflation rates across 14 US metropolitan statistical areas has been fluctuating close to the level observed across the euro area countries since 2004.<sup>28</sup>

Overall inflation fell in all euro area countries in the period 1999-2007, compared with the period 1990-98, except in Ireland, Luxembourg and the Netherlands, where it rose (see Table 7). A breakdown of price developments shows that domestic costs in a majority of the euro area

28 The 14 MSAs considered are New York, Philadelphia, Boston, Washington, Chicago, Detroit, Cleveland, Dallas, Houston, Atlanta, Miami, Los Angeles, San Francisco and Seattle.

**Chart 5 Dispersion of annual inflation rates across euro area countries and 14 US metropolitan statistical areas (MSAs) since 1990**

(unweighted standard deviation, percentage points)



Source: ECB calculations based on Eurostat and US Bureau of Labor Statistics.

**Table 7 CPI/HICP inflation rates across euro area countries**

(average annual percentage changes)

	1980-1989	1990-1998	1999-2007
Euro area	7.6	3.0	2.1
Belgium	4.9	2.1	2.0
Germany	2.9	2.2	1.6
Ireland	9.3	2.5	3.4
Greece	19.5	11.8	3.2
Spain	10.2	4.4	3.1
France	7.4	2.1	1.8
Italy	11.2	4.4	2.3
Cyprus	-	-	2.6
Luxembourg	4.8	2.4	2.7
Malta	-	-	2.3
Netherlands	2.9	2.2	2.4
Austria	3.8	2.4	1.7
Portugal	17.7	6.1	2.9
Slovenia	-	-	5.5
Finland	7.3	2.5	1.6

Source: ECB.

Notes: Data refer to HICP inflation, as far back as available, and CPI inflation prior to that. Data for Slovenia are available from 1996 onwards, and for Cyprus and Malta from 1997 onwards. "Euro area" refers to the euro area in changing composition.

Table 8 Inflation accounting for the period 1999-2007

(average annual percentage points; relative to the euro area)

	Final demand deflator			Total change	Unit labour costs	
	Total change	Contribution to total change			Compensation	Inverse labour productivity
		Domestic costs	Import costs			
Belgium	0.3	-0.2	0.5	-0.1	0.4	-0.5
Germany	-1.2	-1.2	0.0	-1.4	-1.2	-0.2
Ireland	0.8	1.0	-0.1	1.5	3.7	-2.1
Greece	1.5	1.7	-0.2	1.3	4.1	-2.7
Spain	1.5	1.4	0.1	1.2	0.4	0.8
France	-0.5	-0.1	-0.4	0.3	0.5	-0.3
Italy	1.7	0.6	1.1	1.0	0.0	0.9
Cyprus	-1.9	-0.8	-1.1	1.6	1.8	-0.2
Luxembourg	1.6	0.1	1.6	1.0	3.5	-2.5
Malta	0.4	0.1	0.3	0.6	1.0	-0.5
Netherlands	0.1	0.0	0.1	0.7	1.1	-0.4
Austria	-0.5	-0.5	0.0	-1.2	-0.5	-0.7
Portugal	0.9	1.1	-0.3	1.6	1.7	-0.1
Slovenia	3.2	1.7	1.5	3.4	6.1	-2.6
Finland	-0.8	-0.7	-0.1	-0.4	0.9	-1.2

Source: ECB calculations based on European Commission and Eurostat data.

Notes: This table shows deviations in the average growth rate of each variable from the euro area average. The numbers in the table can be interpreted as follows: taking Belgium as an example, the total change in the final demand deflator was 0.3 percentage point higher than in the euro area as a whole per annum in the period 1999-2007. The contribution from average import cost in Belgium relative to the euro area was 0.5 percentage point per annum, while the contribution from relative domestic costs was -0.2 percentage point per annum to the relative change in the final demand deflator.

countries appear to be the most important factor related to the inflation differentials vis-à-vis the euro area average in the period 1999-2006 (see Table 8). Among the domestic factors, differences in unit labour cost growth – in turn more closely associated with diverging wage developments than differences in labour productivity growth – seem to have played an important role. However, changes in import costs seem to have also contributed to inflation differentials.

Some inflation and cost differentials are normal in a monetary union. The process of equilibrium price and cost adjustment in a currency union is typically associated with an adjustment of relative prices across regions and sectors. Such a mechanism, which to a certain extent is a normal feature of a catching-up process or, more generally, of trend productivity differentials, may give rise to inflation differentials across the regions and sectors of a monetary union.<sup>29</sup>

Inflation differentials in the euro area have been rather persistent, in the sense that many countries have systematically maintained either a positive or a negative inflation gap against the euro area average over a protracted period (see Box 1).

Several factors – which are intrinsically interlinked – may explain the existence of long-lasting inflation and labour cost growth differentials in the euro area.<sup>30</sup> In particular, a distinction can be made between factors related to convergence and economic integration processes, those related to long-lasting or permanent differences in national economic structures, and policy-induced factors

29 See, among others, I. Angeloni and M. Ehrmann (2004), “Euro area inflation differentials”, ECB Working Paper No 388, and F. Altissimo, P. Benigno and D. Rodríguez-Palenzuela (2004), “Inflation differentials in a currency area: facts, explanations and policies”, presented at the ECB workshop “Monetary policy implications of heterogeneity in a currency area”, Frankfurt, 13-14 December 2004, available on the ECB’s website ([www.ecb.europa.eu](http://www.ecb.europa.eu)).

30 See the article entitled “Monetary policy and inflation differentials in a heterogeneous currency area” in the May 2005 issue of the Monthly Bulletin.

Differentials are normal in a monetary union

Some differentials are due to price level convergence

related to the conduct and operation of national fiscal, structural and wage policies or to the various regional responses to euro area-wide policies.

Turning first to the factors related to convergence and economic integration, the implementation of Europe's Single Market in the first half of the 1990s and the subsequent introduction of the single currency in 1999 have contributed to a marked decline in price level dispersion, mainly for tradable goods. The price convergence of tradable goods towards a common long-term level is likely to have accounted for some of the inflation differentials in the first years of the euro.

Inflation differentials across the euro area countries may also result from the convergence of price levels for non-tradable goods and services<sup>31</sup>. This catching-up effect is often associated with growth differentials between traded and non-traded sector productivity or, more generally, with the process of convergence in living standards in GDP per capita across economies. For example, according to the Balassa-Samuelson effect, countries that display pronounced sectoral differences in productivity developments relative to other countries (with relatively higher productivity growth in the tradable sector) would tend to experience relatively higher wage growth and inflation in the non-tradable sector. Within a currency union, where a nominal exchange rate appreciation is not possible, such a country would experience higher overall relative inflation. However, empirical evidence of this effect is mixed.

Second, inflation or price level differentials may also emanate from normal structural differences, such as heterogeneity in consumer preferences and differences in national exposure to changes in the exchange rate of the euro and the price of raw materials. In particular, differences in the degree of openness and in the composition of international trade could be factors explaining inflation differentials.

Some differentials are due to inappropriate policies

Third, both area-wide and regional policies might themselves shape the degree of heterogeneity in a currency union. For instance, fiscal policy may reinforce inflation differentials through the inappropriate use of fiscal instruments (see Section 4.2). Structural rigidities and a lack of full implementation of the Single Market may imply that larger price differentials are likely to be observed than in the case of a higher degree of cross-border competition and economic integration. Structural and wage policies conducted at national or regional level can also be a source of inflation differentials. For example, the fact that indexation clauses in collective wage-bargaining agreements are present in some euro area countries may, for instance, delay necessary adjustments and contribute to the persistence of inflation differentials by increasing inflation inertia in those countries.

31 Non-tradables are goods and services that, to a large extent, are traded locally.

#### Box I

##### UNDERSTANDING INFLATION PERSISTENCE AND DETERMINANTS OF WAGE DYNAMICS

In addition to country-specific shocks, an important source of inflation and growth differentials are the potential differences in the flexibility of prices and wages across countries. In any case, a deep understanding of the determinants of price and wage dynamics across the euro area countries is crucial for the conduct of monetary policy. In view of the importance of issue, two

ESCB-wide networks, namely the Inflation Persistence Network (IPN) and the Wage Dynamics Network (WDN), have been set up. This box presents the main findings of these two networks.

The IPN started its work in 2003 and reported the results of its research at a conference in December 2004<sup>1</sup>. The IPN adopted three approaches to tackling this issue: analysis of macroeconomic data, detailed analysis of micro data on individual price changes for both consumer and producer prices, and surveys of firms with the aim of identifying the main factors that influence their price-setting behaviour.

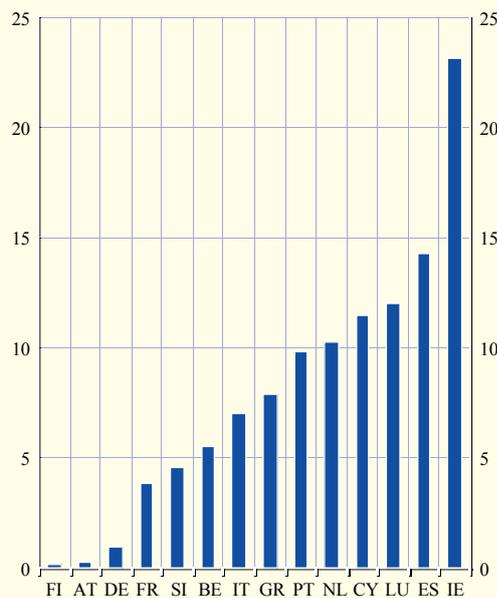
The main conclusions of these analyses were as follows. First, under the current monetary regime, the degree of persistence of inflation is found to be moderate. This contrasts with experience in the earlier era of high inflation, when expectations were less well anchored, with the result that shocks to inflation tended to lead to more protracted changes in inflation. Second, on the basis of micro data on price changes, consumer prices in the euro area appear to be stickier than in the United States. For example, individual prices in the euro area are typically changed every 12 to 15 months, as opposed to every six months in the United States. Third, there is considerable cross-sectoral heterogeneity in price-setting, but there do not appear to be important differences across countries in the frequency of price changes. For example, food and energy prices are changed much more frequently than services prices. Fourth, price decreases are rather common (some 40% of consumer price changes are price cuts), suggesting that prices are not as subject to downward nominal rigidity as was previously believed. Fifth, the survey evidence reveals that the price adjustment process typically takes place in two steps: price reviews by firms and subsequently price changes. In fact, price reviews are found to be much more frequent than actual price changes. With regard to the determinants of price changes, the survey results show that around one-third of euro area firms follow a regular timetable in setting prices (“time-dependent pricing”), while one-fifth change their prices when specific events lead to a sufficiently large deviation between the actual price and the desired price (“state-dependent pricing”). The remainder follow a mixed strategy. Both the survey evidence and the analysis of individual price changes suggest that an important determinant of the frequency of price changes is the volatility of firms’ costs. For example, prices tend to be changed much less frequently in sectors where wages, which themselves tend to be rather sticky, represent a high share of firms’ total costs.

The findings of the IPN highlighted the need for a deeper understanding of the determinants of wage dynamics. Therefore, in 2006, the WDN was launched. In addition to researchers from the euro area, the WDN also includes researchers from non-participating central banks. Four lines of research are being pursued. The first focuses on the analysis of aggregate and sectoral wages and labour costs and their interaction with price dynamics. The second line of research focuses on the analysis of micro data on wages and, *inter alia*, aims to determine the nature and magnitude of wage and labour market rigidities. Third, the WDN has launched a survey of firms to identify the main mechanisms underlying their wage-setting practices. Finally, a meta-analysis of the findings aims to draw the main conclusions from the research and identify relevant policy implications. The results of the WDN will be presented at a conference in June 2008.

<sup>1</sup> See F. Altissimo, M. Ehrmann and F. Smets (2005), “Inflation persistence and price-setting behaviour in the euro area – a summary of the IPN evidence”, ECB Occasional Paper No 46.

**Chart 6 Harmonised competitiveness indicators across the euro area countries in the period 1999-2007**

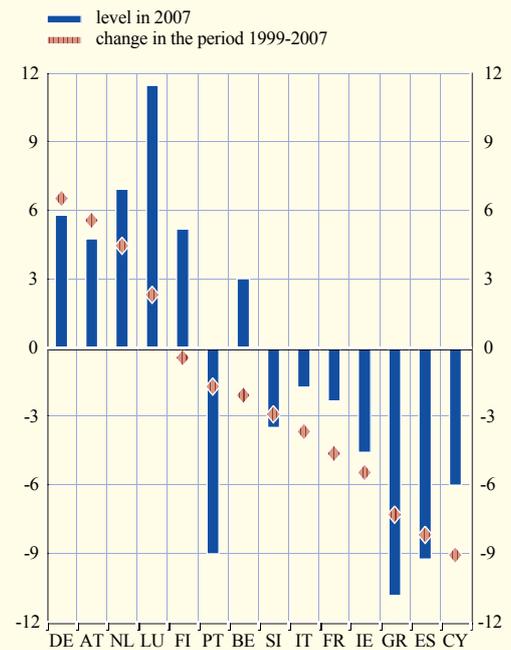
(cumulated percentage changes)



Source: ECB calculations based on Eurostat data.  
Notes: ECB CPI-deflated weighted averages of relative inflation rates versus a group of 44 trading partners and euro area countries. An increase reflects a real effective appreciation, i.e. a decline in this indicator of national competitiveness. Countries are sorted by ascending indicator growth.

**Chart 7 Current account positions in 2007 and cumulated changes across the euro area countries in the period 1999-2007**

(levels as a percentage of GDP and cumulated changes in percentage points as a percentage of GDP)



Source: ECB calculations based on European Commission data.

**Differentials may cause losses in competitiveness and output growth**

As a result of the persistent inflation differentials observed, the euro area countries have experienced marked differences in terms of the evolution of national price competitiveness indicators. Harmonised competitiveness indices (HCI), based on weighted averages of relative prices deflated by the HICP, provide one comparable measure of individual euro area countries' price competitiveness.<sup>32</sup> Chart 6 shows that, in the period 1999-2007, Germany, Austria and Finland experienced very modest increases in their HCIs, indicating only slight losses in this measure of price competitiveness, whereas rises were particularly strong in the HCIs of Ireland and Spain. Relative unit labour cost developments give a similarly heterogeneous picture of competitiveness developments across the euro area countries. Changes in relative prices or costs are one of the key channels for adjustment within the euro area. Reducing unit labour costs is not a "beggar thy neighbour" policy. On the contrary, labour cost moderation reduces inflationary pressures, which tends to contribute to lower interest rates for the whole euro area. Sustained cost moderation has a favourable impact on structural employment beyond the positive effect of improved competitiveness and better trade performance. Protracted losses in price and cost competitiveness, if not associated with equilibrium price and cost adjustments, may adversely affect output and employment, as well as trade and current account balances (see Chart 7).<sup>33</sup>

32 See the box entitled "The introduction of harmonised competitiveness indicators for euro area countries" in the February 2007 issue of the Monthly Bulletin. In future extensions of this set of HCIs, it will be useful to compare the present set of HCIs based on consumer price developments with indicators based on deflators that include fewer non-traded products and services, which may have a greater association with the competitiveness of the countries' external sectors.

33 See the box entitled "Current account balances across the euro area countries from a savings and investment perspective" in the July 2007 issue of the Monthly Bulletin.

To conclude, the persistence of inflation and growth differentials over longer periods of time may, in many cases, be an equilibrium phenomenon determined by catching-up processes and/or trend differentials in potential growth. However, if induced by structural inefficiencies or misaligned national policies (including wage-setting policies), such differentials may be worrisome. As national monetary and exchange rate policies are no longer available options within the euro area, it is important to ensure that the remaining mechanisms of adjustment to shocks function properly. Rigidities in wage and price-setting mechanisms or ongoing excessive wage developments may delay the necessary adjustments of relative prices to economic shocks and give rise to a prolonged period of relatively high inflation in some countries. This, in turn, could contribute to an accumulation of internal imbalances and losses in price and cost competitiveness within the euro area, which could also dampen output and employment. The efficient and smooth functioning of economic adjustments within the euro area requires the removal of institutional barriers to flexible wage and price-setting mechanisms, the completion of the Single Market and thus greater domestic and cross-border competition [see Section 4.1], as well as prudent fiscal policies.

Sound policies are also of great importance for those countries aiming to join the euro area in the future. Euro area enlargement will be dealt with in the next section.

#### 4.4 EURO AREA ENLARGEMENT

This section reports on the enlargement of the euro area since 1999, describes the current state of play with respect to further euro area enlargements and highlights the need for sustainable convergence as a precondition for joining the euro area (see also Chapter 2).

##### THREE ROUNDS OF EURO AREA ENLARGEMENT

As mentioned in Chapter 2, since the introduction of the euro in 1999 by 11 EU Member States, the euro area has undergone three rounds of enlargement that have brought the number of euro area countries to 15.

##### FUTURE EURO AREA ENLARGEMENTS

Currently, there are 12 EU countries that have not yet introduced the euro, with notable differences in their legal status and the stage of their convergence. In particular, Denmark and the United Kingdom have a special status based on an “opt-out clause”, whereby the degree of convergence achieved for entering the euro area will only be assessed if they so request.

All of the ten remaining countries (Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovakia and Sweden) are EU Member States with a derogation. This means that they are committed to eventually adopting the euro. However, the actual timing and the optimal convergence path to the adoption of the euro will have to be looked at on a country-by-country basis.

The adoption of the euro requires a prospective country’s currency to remain in ERM II for at least two years with no severe tensions prior to the convergence assessment and subject to compliance with the other “Maastricht criteria”.

**Table 9 Monetary integration plans of EU Member States outside the euro area**

Country	Intentions for ERM II	Intentions for euro adoption
Bulgaria	As soon as possible.	Aims to adopt the euro as soon as possible.
Czech Republic	ERM II participation for only the minimum period of two years ahead of EMU entry. Inflation targeting will be retained until monetary integration completed. The readiness to join ERM II and the euro area is assessed on a yearly basis jointly by the government and the national central bank.	The latest update of the "Czech Republic's euro area accession strategy", approved by the Czech authorities in August 2007, states that some of the preconditions needed for benefiting from the adoption of the euro have yet to achieve satisfactory parameters. The main obstacles relate to the need to enhance the flexibility of the economy and fiscal policy consolidation.
Denmark	Participating.	No current plans. Referendum on euro adoption in September 2000 resulted in a 53% "no" vote.
Estonia	Participating.	Aims to adopt the euro as soon as possible.
Latvia	Participating.	Aims to adopt the euro as soon as possible.
Lithuania	Participating.	Aims to adopt the euro as soon as possible.
Hungary	The Convergence Programme update does not contain any desired ERM II entry date. It only states that participation in ERM II should be made conditional upon the restoration of fiscal credibility.	The Convergence Programme does not contain any desired euro area entry date.
Poland	ERM II participation for only the minimum period of two years. No explicit target date for ERM II entry.	The Convergence Programme does not specify the target date for euro adoption.
Romania	According to the 2007 Convergence Programme there are no intentions to join ERM II before 2012. Aims to stay in the ERM II for the minimum required period before adopting the euro.	Not before 2014.
Slovakia	Participating.	Aims to meet the fiscal reference value in 2007 and to join the euro area in 2009.
Sweden	No current plans.	No current plans. Referendum in September 2003 on euro adoption resulted in a 56% "no" vote.
United Kingdom	No current plans.	As soon as government's five tests are fulfilled.

Source: ESCB.

#### Five countries in ERM II

Five EU Member States currently outside the euro area are participating in ERM II. The two countries joined the mechanism on different dates, some of them with unilateral exchange rate commitments. On 1 January 1999, Denmark entered ERM II with a fluctuation band of +/- 2.25% around its currency's central exchange rate. On 28 June 2004, Estonia, Lithuania (and also Slovenia) joined. Both Estonia and Lithuania joined with a +/- 15% fluctuation band. These countries additionally decided to continue with their currency board arrangements as a unilateral commitment. On 2 May 2005, Latvia joined ERM II (together with Cyprus and Malta). Latvia also decided to join with a +/- 15% fluctuation band, but has continued to keep a fluctuation band of +/- 1% as a unilateral commitment. Finally, on 25 November 2005, Slovakia joined ERM II, participating with a +/- 15% fluctuation band.

Currently, Bulgaria, the Czech Republic, Hungary, Poland, Romania and Sweden are the only EU Member States with a derogation that have not yet entered ERM II (see Table 9).

## NEED FOR SUSTAINABLE CONVERGENCE

To join the euro area, Member States must fulfil a number of legal and economic convergence criteria. Fulfilling the convergence criteria in a sustainable way ensures that the country can integrate smoothly into the Monetary Union. This approach is firmly based on economic arguments. Once a country joins the Monetary Union, it loses the possibility to use interest rate policy. As monetary policy decisions in EMU are taken in the light of the economic conditions prevailing in the euro area as a whole, sustained economic convergence is required to ensure that a country's economy is sufficiently prepared for monetary union.

Introducing the euro can substantially benefit a country that has achieved sustainable convergence. Such benefits include the elimination of exchange rate risks in relation to its main trade partners, reduced transaction and information costs, higher protection against certain financial disturbances, and a decrease in risk premia and lower long-term interest rates due to a credible framework for fiscal and monetary policy. For the euro area as a whole – and the EU as well – the main benefit of euro area enlargement is the completion of the internal market for goods, services and capital. However, these benefits would not apply in the case of premature euro adoption, which could harm a country in many ways. Differences in business cycles could lead to “sub-optimal” interest rates in a national context (from the perspective of both economic stabilisation and resource allocation) and the emergence of local “bubbles” or “crises.” Unless convergence is sustainable, a country might run into competitiveness problems, which it could no longer solve through exchange rate adjustments. If there were insufficient wage and price flexibility to adjust to changes in competitiveness and/or shocks, there would also be a risk of protracted economic losses. For the euro area as a whole, premature adoptions of the euro could lead to the loss of the credibility of the EMU project.

The ECB's Convergence Reports<sup>34</sup> emphasise that convergence must be achieved on a lasting basis and not just at a given point in time. For this reason, the country examinations describe in detail the sustainability of convergence. In this respect, economic developments in the countries concerned are reviewed from a backward-looking perspective covering, in principle, the past ten years. This helps to better determine the extent to which current achievements are the result of genuine structural adjustments, which in turn should lead to a better assessment of the sustainability of economic convergence. In addition, and to the extent appropriate, a forward-looking perspective is adopted. In this context, particular attention is drawn to the fact that the sustainability of favourable economic developments hinges critically on appropriate and lasting policy responses to existing and future challenges. Overall, it is emphasised that ensuring the sustainability of economic convergence depends both on the achievement of a sound starting position and on the policies pursued after the adoption of the euro.

The legal convergence criteria oblige prospective euro area countries to put in place the legal foundations for participation in the Monetary Union, of which central bank independence is a cornerstone.

The economic convergence criteria ensure that the applicant countries have established economic conditions that are conducive to maintaining price stability and the coherence of the euro area. The framework of analysis comprises developments in prices, fiscal balances and debt ratios,

Benefits of sustainable  
convergence

Need for sustainable  
convergence

34 See the ECB's May 2008 Convergence Report.

exchange rates and long-term interest rates, as well as other factors. A number of general rules are used in the application of these criteria:

1. The individual criteria are strictly interpreted and applied.
2. The criteria constitute a coherent and integrated approach. They must all be satisfied. The Treaty lists the criteria on an equal footing and does not suggest a hierarchy.
3. The criteria must be met on the basis of hard data.
4. The application of the criteria should be consistent, transparent and simple.
5. Convergence must be achieved on a sustainable basis and not just at a given point in time.

Once a country fulfils these legal and economic criteria in a sustainable manner, it joins the euro area. However, the adoption of the euro is not the end of the story. Indeed, joining the euro area is not in itself a recipe for success. After adopting the euro, countries still need to pursue the right policies in order to thrive in the euro area (see Sections 4.1, 4.2 and 4.3).

#### 4.5 CHALLENGES AND WAY FORWARD

The previous sections show that economic flexibility and integration is a clear prerequisite for the smooth functioning of the euro area, as individual euro area economies or regions may be affected by specific developments. Furthermore, the euro area is continuously confronted with shocks and challenges, for instance, in the fields of global competition or energy price developments. At the same time, national monetary and exchange rate policies are no longer available policy options in a monetary union. In order to avoid a situation where, after suffering a specific or asymmetric shock, a country or a region in the euro area enters either a period of protracted low growth and high unemployment or a long period of overheating, other efficient adjustment mechanisms need to be in place.

The recent increases in labour market participation and employment are encouraging developments, which show that past labour market reforms, immigration and wage moderation have helped to overcome some of the constraints on growth stemming from rigid and over-regulated labour markets. They also confirm that monetary policy geared towards price stability is in no way inconsistent with job creation and low unemployment; on the contrary. However, despite this progress, most euro area countries are still far from having exhausted the potential for further increases in participation rates and employment. Structural impediments, triggered by a rigid legal and regulatory environment, high taxes on labour and rigidities associated with wage regulations, still prevent or discourage far too many people from actively participating in the labour market and thus keep participation rates too low and unemployment too high.

Therefore, in order to enhance employment, productivity and the resilience to economic shocks, it is particularly important for economic policy in the euro area countries to be developed further along the following dimensions. First, with respect to labour market policies, governments and social partners must share responsibility for ensuring that wage determination pays sufficient attention to labour market conditions and does not jeopardise competitiveness and employment. This requires the social partners to take into account the different conditions at firm and sectoral level and to dampen the repercussions of wage settlements on competitiveness, and thus employment, at their company and in their industry, sector or region. Sufficient wage differentiation would improve employment opportunities for less skilled workers and in regions or sectors with high unemployment. In this respect, excessive regulations, such as minimum wages, are undermining

Adjustment mechanisms  
must be more efficient ...

... for smooth functioning of  
euro area

Gains thus far, but further  
reforms needed

Wage differentiation  
supports employment

job creation, particularly for the young and less qualified workers, as well as for all those who face problems entering the labour market.

Second, the proper functioning of adjustments through labour markets has to be complemented by the completion of the Single Market, particularly in services and network industries. A deeper integration of markets would stimulate price flexibility by fostering competition and open product markets. Greater cross-border competition and the integration of markets across the euro area countries would contribute to lower prices. They could also enhance the adjustment processes in the individual countries in the event of region or country-specific shocks or differing cyclical developments, thereby avoiding too high levels of regional unemployment.

Third, national authorities can make a substantial contribution to ensuring a proper functioning of adjustment mechanisms within the euro area when they conduct a well-designed sustainable fiscal policy, in line with the orientations provided by the Stability and Growth Pact. Moreover, fiscal policy can, and should, also help to support long-run growth by improving the quality of spending and minimising economic disincentives in tax policies. In this context, it is particularly important that fiscal authorities prepare for the challenges posed by demographic ageing. High and inefficient public expenditure can put a brake on economic activity by imposing a high tax burden on the economy and by channelling resources into unproductive uses. Similarly, higher administered prices, indirect taxes and minimum wages tend to add to inflationary pressures, making the conduct of monetary policy more difficult.

Fourth, in the context of the Lisbon Strategy the necessary reforms that aim to improve long-term growth prospects in the euro area and enhance employment and productivity must be implemented. This would improve the adjustment mechanisms in individual countries, regions or sectors and is therefore an important factor in improving the overall resilience to economic shocks of the euro area economy.

Fifth, developments in price competitiveness and unit labour cost competitiveness across the euro area economies must be closely monitored. Persistent losses in relative cost competitiveness can also relate to a number of structural rigidities leading to inertia in price and wage formation and excessive increases in labour costs. If and when such phenomena are identified, it is important for all parties concerned – the private sector, social partners and the national public authorities – to be as lucid as possible in their own decision-making in order to avoid relative losses of competitiveness that would not be economically justified and that would thus undermine growth and job creation in the future.

Finally, those countries aiming to join the euro area in the future are well advised to take the above challenges seriously in their convergence process and to be well prepared when joining.

**Single Market must be completed**

**Sound fiscal policies and low taxes are important**

**Lisbon strategy still central**

**Changes in competitiveness must be monitored**





## 5 THE EURO'S IMPACT ON TRADE AND CAPITAL FLOWS AND ITS INTERNATIONAL ROLE

*Since 1998, the euro area has become even more open to the rest of the world, as measured by trade and its international asset and liability investment positions. At the same time, trade and capital flows among euro area countries have also risen. Intra-euro area trade in goods and services has increased by about 10 percentage points relative to GDP, which can be partly attributed to the creation of the euro. The single currency has also promoted an increase in the degree of intra-euro area competition and convergence of intra-euro area trade prices, phenomena which are expected to continue in the future. As for capital flows, the euro has boosted foreign direct investment (FDI), in particular cross-border merger and acquisition (M&A) activity in manufacturing, and portfolio flows across euro area countries. A number of factors associated with the euro favoured these higher capital movements among euro area countries, including the elimination of exchange rate risk, the reduction of the cost of capital, the use of common trading platforms, and the cross-border merger of stock exchanges (e.g. Euronext). Another dimension of the euro relates to its use beyond the euro area's borders. Over the past ten years, the euro's role in international markets has increased somewhat, but the pace of change has been gradual and appears to have levelled off in some market segments. Moreover, the currency's international role is geographically concentrated in regions that are close to the euro area. These international dimensions of the euro area underscore the need for close dialogue between the Eurosystem and central banks elsewhere in the world. This dialogue takes place through various bilateral and multilateral channels. This chapter is structured as follows: Section 5.1 looks at the trade and competitiveness effects of the euro, while Section 5.2 focuses on the impact of the euro on international capital flows. Section 5.3 reviews developments in the international role of the euro and Section 5.4 discusses the international cooperation of the euro area, focusing on the role of the ECB.*

### 5.1 TRADE IN GOODS AND SERVICES OF THE EURO AREA

The euro area economy is relatively open, particularly when compared with the world's two other leading economies, the United States and Japan. In 2006, the combined value of imports and exports of goods and services was equivalent to around 42% of GDP, compared with around 32% and 28% for Japan and the United States, respectively. The euro area also accounted for 18% of the value of world exports, compared with approximately 12% for the United States, 6% for Japan and 10% for the ten largest oil exporting countries. Moreover, the trade openness of the euro area has increased noticeably since 1998 (by 11 percentage points), particularly as a result of rapidly growing trade with new EU members and China.

Since 1998 trade among euro area countries has risen strongly. The value of exports and imports of goods within the euro area has increased from about 26% of GDP in 1998, the year before the euro was introduced, to 33% of GDP in 2007. Meanwhile, intra-euro area services trade has also gone up, from 5% to 7% of GDP. In 2007, trade within euro area countries represented about one-half of total euro area trade.

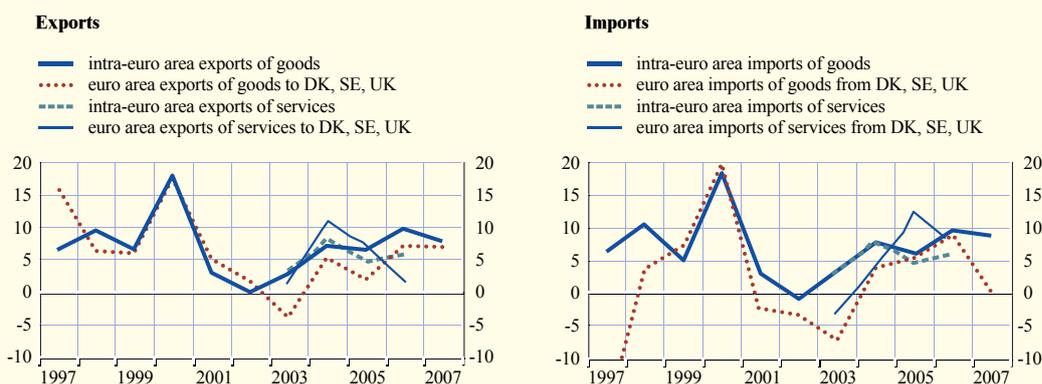
Developments in euro area trade with Denmark, Sweden and the United Kingdom show that the euro has pushed up trade across the euro area countries over and above the positive effects generated by the continuing process of EU integration in a single market. Since 1998 the year-on-year growth of euro area exports of goods to the three EU15 countries that have not adopted the euro has been on average 3% lower than the year-on-year growth of exports within the euro area. At the same time, the growth of imports from these countries has been on average 2% lower than imports from within the area. In services, the yearly growth of intra-euro area flows has in fact been lower than the growth of trade with the three non-euro area countries, possibly reflecting in part a stronger

**Euro area economy relatively open compared with the United States and Japan**

**Trade among euro area countries sharply increased since 1998**

**Chart 1 Developments in intra-euro area trade vs. euro area trade with Denmark, Sweden and the United Kingdom, 1996-2007**

(values; year-on-year growth)



Sources: Eurostat and ECB calculations.  
Notes: Estimates for 2007 are based on data for the first half of 2007. Data on trade in services are only available since 2002.

specialisation of the United Kingdom in services and an EU internal market for services which is still very fragmented. See Chart 1.

Below we investigate the impacts of Economic and Monetary Union (EMU) in further detail by drawing on various empirical studies in order to distinguish the trade-creating effects of the euro from those of other major developments over the past decade (including, for example, the EU's continuing integration and the ongoing rapid pace of globalisation).

#### TRADE-CREATING EFFECTS OF THE EURO ON TRADE IN GOODS

Ceteris paribus, the formation of a monetary union is expected to stimulate trade between its members by eliminating exchange rate volatility, thereby removing uncertainty in returns and profits due to exchange rate fluctuations. In addition to the exchange rate volatility impact, there might also be an additional boost to intra-trade, due to the formation of a monetary and currency union – the so-called Rose effect.<sup>1</sup>

In the last few years, a growing body of empirical research has investigated the impact of the euro on trade in goods, with the effect on services not having been quantified yet due to the scarce availability of necessary data. There is a broad agreement that the euro has had a positive bearing on euro area trade. Yet, estimates on the size of the effect have provided very heterogeneous results, largely due to the adoption of different methodologies of analysis. Economists now seem to have reached the consensus view that the single currency has boosted the growth of euro area countries' trade on average by 2 to 3 percentage points.<sup>2</sup> This assessment is consistent with the preliminary indications of Chart 1. By contrast, earlier estimates of larger effects may be somewhat upward biased. The previous small number of available observations for the EMU period made it difficult,

Trade among euro area countries is on average 2 to 3% higher due to euro

1 The "Rose effect" is named after Andrew Rose, an economist who first suggested that monetary unions might increase trade beyond the positive effect due to the elimination of exchange rate volatility. Rose, Andrew K., 2000, "One money, one market: the effect of currency unions on trade," *Economic Policy* 30, 7-46.

2 See, for example, Bun M. and Klassen F. (2007) "The euro effect on trade is not as large as commonly thought", *Oxford Bulletin of Economics and Statistics*, Vol. 69, 4.

until recently, to distinguish the trade effects of the euro, the EU Single Market and the general increase in trade between the euro area and the rest of the world.

Regarding individual sectors, the removal among the euro area countries of the uncertainty due to exchange rate fluctuations has benefited trade across all industries. By contrast, the Rose effect, i.e. the additional boost arising from the creation of a single currency, occurs mainly in areas such as machinery and highly differentiated consumer goods such as food and related products.<sup>3</sup> Most of these sectors have high market entry costs associated with the decision to start exporting, thereby suggesting that a reduction of such costs is a channel through which the euro may have contributed to euro area trade flows.

Ongoing analysis of exports by firms lends support to this view, indicating that the euro has primarily helped to increase the number of products and varieties exported within the euro area rather than increasing the volumes of items already exported before 1999. Moreover, the single currency may have affected trade also by changing the pricing behaviour of euro area exporters. Available evidence suggests that following the creation of the euro, the incentive for companies to segment markets within the euro area by applying country-specific prices has diminished.<sup>4</sup> In parallel, the euro has also contributed to price convergence among members of the euro area.<sup>5</sup> Overall, the euro seems to have lowered the transaction and fixed costs faced by euro area firms, with the savings partly passed on to consumers, via lower trade prices.

### THE EURO AND EURO AREA COMPETITIVENESS

As for the impact of EMU on the competitiveness of euro area firms and their capacity to play a leading role in world markets, recent research indicates that the euro has contributed to enhancing firms' competitiveness by facilitating euro area countries' trade and by contributing to the integration of the EU Single Market. Euro area countries are seen as better export bases, attracting a greater number of firms from neighbouring countries. A larger and more integrated euro area, while allowing firms to benefit from increasing their scale of operations at declining marginal cost, also tends to be associated with tougher competition and, therefore, richer product variety, higher productivity and lower prices.<sup>6</sup>

Hence – other things being equal – the euro has promoted efficiency in the euro area, enhancing its ability to compete in the world markets. Yet, the impact across the euro area countries may vary due to differences in the quality of institutions and access to technology, research and development.

Against this background of greater competition within the euro area, the emergence worldwide of cost-competitive countries as major exporters has also increased the degree of external competition faced by euro area countries.<sup>7</sup> For example, over the last decade China has been increasing its world

Euro may have led to cost reductions for euro area firms and to lower prices for traded goods

Euro has made firms more competitive

Euro area countries face more cost competition worldwide

3 For evidence on sectoral studies, see, for example: Baldwin R., Skudelny F. and Taglioni D. (2005) "The Effect of the Euro: Evidence from Sectoral Studies" ECB Working Paper No 446; De Nardis S., De Santis R. and Vicarelli C. (2007) "The single currency's effects on eurozone sectoral trade: winners and losers?" ISAE.

4 See, for example, Berthou A. and Fontagné L. (2008) "The Euro and the Intensive and Extensive Margins of Trade: Evidence from French Firm Level Data", CEPII; as well as Méjean I. and Schweltnus C. (2007) "Does European Integration have an Effect on the Pricing Behaviour of French Exporters?" CEPII.

5 See, for example, Allington N., Kattuman P. and Waldman F. (2005) "One market, one money, one price?" *Journal of Central Banking* pp. 73-115.

6 Ottaviano G., Taglioni D. and di Mauro F. (2007) "Deeper, Wider and More Competitive? Monetary Integration, Eastern Enlargement and Competitiveness in the European Union", ECB Working Paper No 847.

7 See, for example, ECB Monthly Bulletin January (2008) "Globalisation, trade and the euro area macroeconomy" and F. di Mauro and R. Anderton (2007) "The external dimension of the euro area: assessing the linkages", Cambridge University Press.

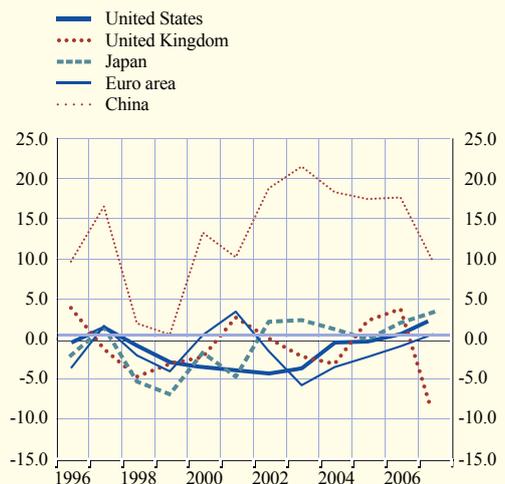
Larger market shares for the euro area in the high-end and traditional goods segments

export market share, at an average pace of almost 13% per year (see Chart 2). This seems to be the counterpart to the declines in export market share experienced by the euro area (1.7% yearly) and the other major trading countries over the same period (with yearly declines ranging from 1.2 to 1.7%). However, losses for the euro area have not been uniform. There are differences among individual euro area economies, with Ireland and Germany being the notable exception as their market shares have risen over the past decade. There are also differences across years, with the largest losses concentrated in the period 2002-2004, corresponding to China's accession to the World Trade Organization.

The euro area export market share losses are partly a mechanical adjustment to the emergence of the new lower-income competitors. However, to some extent they may also reflect the export specialisation of the euro area. In particular, some euro area countries seem somewhat overweight in labour-intensive sectors where emerging economies have a relative comparative advantage. On a more positive note, recent analyses show that in the past decade euro area and other EU Member States have also gained market shares in the higher-price and higher-quality segments of mature industries and products, thereby contrasting with their relatively weaker performance in other types of export.<sup>8</sup>

Chart 2 Annual changes in export market shares: euro area, United Kingdom, United States, Japan and China

(volumes; percentage points)



Source: ECB calculations.

Notes: The changes in export market shares are calculated as the difference between the annual growth rate of exports and foreign demand (where foreign demand is defined as a country-specific export-weighted sum of foreign import volumes of goods and services). Last observation refers to 2007.

## 5.2 INTERNATIONAL CAPITAL FLOWS

Euro area is financially "open", especially since euro launch

The euro area is also relatively open from a financial perspective, with international assets and liabilities exceeding 150% of GDP in 2006 compared with about 115% for the United States and 90% for Japan. In addition, the external financial openness of the euro area has been growing significantly in recent years with external assets and liabilities rising by about 60% of GDP over the period 1999-2006.

The individual euro area countries are considerably more open than the euro area as a whole given the large foreign direct investment (FDI) and portfolio activity that has also occurred between euro area members. For example, the euro area countries – either as recipients or as sources of investment – accounted for as much as 57% of world FDI flows between 2000 and 2005. Meanwhile, euro area residents held 34% and 44% of the world international equity and bond portfolios from 2001 to 2006. Given that euro area GDP is only about one-quarter the size of world GDP, these stylised facts suggest that the euro might have played an important role in these capital movements, particularly between euro area countries.

<sup>8</sup> L. Fontagné, G. Gaulier and S. Zignago (2008) "Specialization Across Varieties and North-south Competition", Economic Policy, Vol. 23 issue 53, pp. 51-91.

The next two subsections document the possible effects of the euro on FDI, M&A activity and portfolio investment.

### IMPACT OF EMU ON FOREIGN DIRECT INVESTMENT AND MERGERS AND ACQUISITIONS

Firms can expand abroad by making a physical investment in another country or by merging or acquiring an existing foreign firm. FDI, therefore, can provide a firm with new markets and marketing channels as well as access to new technology, products and skills. For a host country or the foreign firm which receives the investment, it can provide a source of new technologies, capital, processes, products, organisational technologies and management skills, and as such can provide a strong impetus to economic development. Overall, FDI can raise efficiency in both the home and host countries.

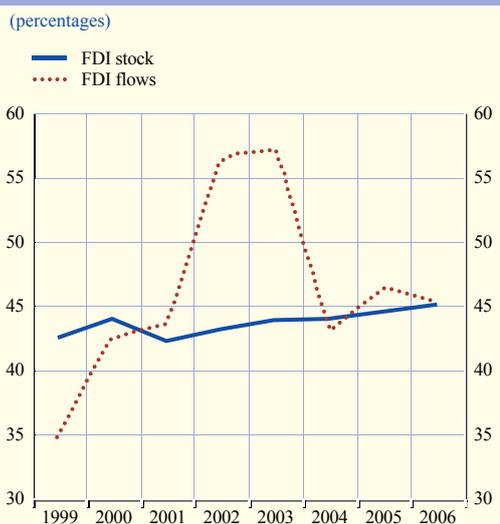
European economic and financial integration seems to have been a magnet for FDI activity particularly in the manufacturing sector, while an increasing share of FDI flows is taking place between euro area countries. For example, intra-euro area FDI flows as a share of total euro area FDI increased from 35% in 1999 to 45% in 2006 (see Chart 3). A positive trend can also be observed when looking at FDI stocks, as the intra-euro area FDI stock as a proportion of the total euro area FDI stock increased from almost 43% in 1999 to 45% in 2006.

Since most FDI activity takes the form of M&As, with the EU15 countries and the United States being the largest players, looking at cross-border M&As gives additional information on the impact of the euro on FDI activity.

Intra-euro area cross-border M&As in the manufacturing sector as a share of total euro area cross-border manufacturing M&As have increased from 20% during the six years before EMU (1993-1998) to 35% in the six-year period after EMU (1999 to 2004). Also, manufacturing firms from Canada, Japan, Norway and the United States have increased their share of mergers with euro area firms. By contrast, when looking at services, the share of intra-euro area M&As declined from 37% to 27% over the same period, while other countries increased their share of M&As invested in euro area assets (see Chart 4).

The key question is whether EMU played a role in such developments. In addition to the elimination of exchange rate risk, some of the possible FDI-inducing mechanisms resulting from the introduction of the euro are: (i) the reduction of transaction and fixed costs, (ii) the reduction in the cost of both equity capital and bond and bank financing, and (iii) the influence of trade on FDI, insofar as intra and extra-FDI flows are interrelated with trade. All of these factors may have facilitated the reallocation of capital among euro area countries.

Chart 3 Intra-euro area FDI as a share of total euro area FDI, 1999-2006



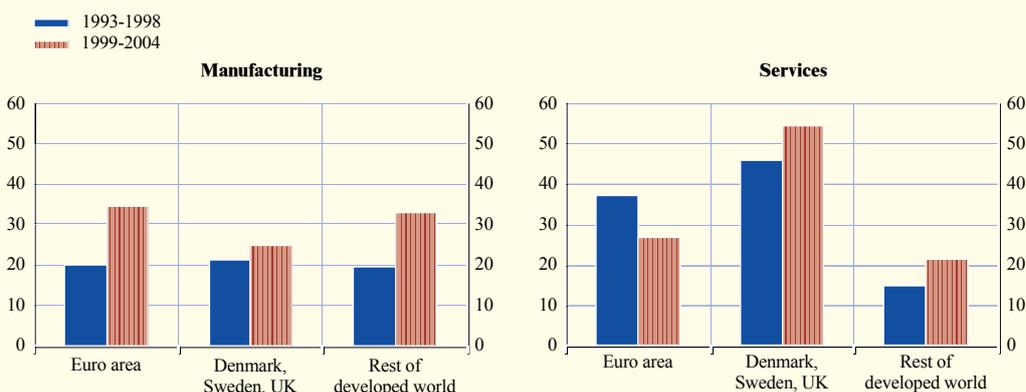
Source: ECB.  
Note: Intra-FDI inflows (stocks) plus intra-FDI outflows (stocks) as a percentage of twice the total euro area FDI flows (stocks).

Strong rise in FDI flows between euro area countries since 1999 ...

... particularly with M&As in manufacturing

**Chart 4 Cross-border M&As in manufacturing and services purchasing euro area assets (1993-2004)**

(percentages)



Source: Thomson Financial.

Note: "Euro area" is the ratio between intra-euro area cross-border M&As and the sum of intra and extra-euro area cross-border M&As. "Denmark, Sweden and UK" is the ratio between Denmark, Sweden and UK M&As vis-à-vis euro area firms divided by their total cross-border M&As. "Rest of developed world" is the ratio between Canada, Japan, Norway and US M&As vis-à-vis euro area firms divided by their total cross-border M&As.

**Intra-euro area FDI flows estimated to be about 15% higher due to euro**

Several empirical studies have investigated the impact of the euro on FDI.<sup>9</sup> The results suggest that the euro has increased FDI across the euro area countries over and above the positive effects generated by the EU Single Market. Overall, it seems that the positive average effect of the euro on aggregate FDI flows within the euro area is about 15%, while the impact of the euro on FDI flows from outside the euro area to the euro area countries is about 7%. These results seem consistent with those reported in Chart 3.

The euro seems to have had most effect in the manufacturing sector. Estimates suggest that on average the euro has increased intra-euro area cross-border M&A activity in manufacturing by about 160%.<sup>10</sup> Moreover, the estimated effect of the euro on euro area M&As from non-euro to euro area countries corresponds to about an 80% increase. The sectors that expanded most in the euro area countries compared with external FDI in the euro area are chemicals and petroleum, coal, rubber and plastic products, and transport equipment. Conversely, the share of merger activity among euro area countries in machinery and equipment has actually declined.

As for services, the estimated impact of the euro on cross-border M&As seems marginal, suggesting that such activities may be negatively affected by the barriers to cross-border trade in services and product market regulations in the target country.<sup>11</sup> These results are consistent with Chart 4 as well as the subdued growth observed in intra-euro area trade in services relative to extra-euro area trade.

9 See, for example, Petroulas, P., 2007, "The effect of the euro on foreign direct investment", *European Economic Review*, 51: 1468-1491; Schiavo S., 2007, "Common currencies and FDI flows", *Oxford Economic Papers*, 59: 536-560; De Sousa, J. and J. Lochard, 2006, "Does the single currency affect FDI? A gravity-like approach", University of Paris 1, mimeo; Flam, H. and H. Nordström, 2007, "The Euro and Single Market Impact on Trade and FDI," 2007, Institute for International Economic Studies, Stockholm University, mimeo.

10 See Coeurdacier, N., De Santis, R.A. and A. Aviat, 2008, "Cross-border mergers and acquisitions: Institutional and financial forces" (paper presented at the 47th Economic Policy Panel meeting in Ljubljana, April 2008). These estimates are consistent with other studies relating to total FDI, as cross-border M&As in manufacturing between developed countries are only about 30% of their total cross-border activity, and they exclude some categories of total FDI, such as greenfield investment, reinvested earnings and inter-company loans.

11 Since services regulations still fall within the competence of individual EU Member States, the EU internal market for services remains to date very fragmented. Restrictions in services might therefore have limited the investment decisions of entrepreneurs, thereby affecting the efficient allocation of capital internationally and within the euro area.

## IMPACT OF EMU ON CROSS-BORDER PORTFOLIO INVESTMENT

Individual wealth often takes the form of portfolio investments in **stocks**, which are investments in individual businesses; bonds, which are investments in debt that are designed to earn interest; and mutual funds, which are essentially pools of money managed by professionals on behalf of investors. If such instruments are issued in a country other than that where the investor is resident, then the investment is of a cross-border nature and subject, inter alia, to foreign currency risk.

The euro has boosted cross-border portfolio investment activity between euro area countries by eliminating the exchange rate risk, and favouring the creation of common trading platforms (e.g. the creation of Euronext through the cross-border merger of the Amsterdam, Brussels, Lisbon and Paris exchanges) and integration in post-trading market infrastructure, which have all further reduced portfolio investment trade barriers.

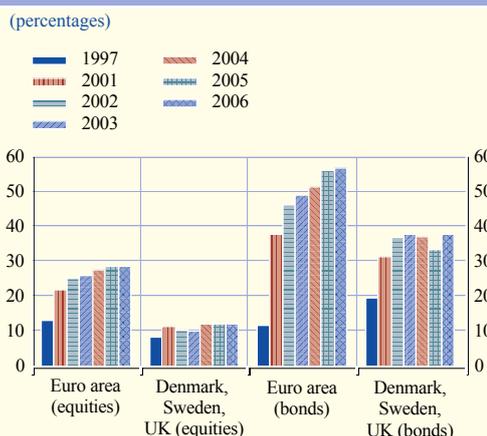
In most countries, portfolio funds are often subject to some form of restriction on the level of their non-domestic investment. Currency matching rules for portfolio funds, for example, are set to ensure that foreign currency risk is reduced. Since the introduction of the euro in January 1999, the intra-euro area currency matching rule has shifted from national currencies to the euro. The resulting greater flexibility allowed individual euro area country portfolios to secure better diversification of investment risk by purchasing more non-domestic euro area assets.

In fact, euro area portfolio assets held in the euro area as a share of total international asset holdings of euro area residents has increased markedly over the period 1997-2006: by 16 percentage points for equities and by 46 percentage points for fixed income securities (see Chart 5). Moreover, all major regions of the world, and Denmark, Sweden and the United Kingdom, increased their holdings of euro area assets (as a share of their international portfolio) over this period, but by a smaller extent. This suggests that the euro might have strongly stimulated portfolio transactions between euro area countries.

There may be many reasons why the reallocation of portfolio holdings towards the euro area has occurred since the launch of the euro, e.g. the elimination of the exchange rate risk among euro area countries, the elimination of technical trading barriers, the diversification benefits arising from holding a variety of foreign assets and the fact that international holdings of euro area assets in 1998 may have already been below optimal levels as indicated by economic principles.<sup>12</sup> Empirical estimates provide support for the notion that the adoption of the euro played a key role in the reallocation of portfolios among countries worldwide as well as among euro area members. After

12 Other factors that could have affected the reallocation of portfolios worldwide are: expected returns and volatility of assets across economies, the tendency to invest in domestic assets (namely, the degree of countries' home bias), expected economic growth performance, the institutional framework, country population ageing profiles, bilateral trade intensity, cultural linkages, etc.

Chart 5 Holdings of euro area portfolio assets relative to total international portfolio holdings, 1997-2006



Sources: BIS, IMF, Thomson DataStream, ECB calculations.  
Note: "Euro area" is intra-euro area cross-border (equity or bond) assets divided by the sum of intra and extra-euro area cross-border (equity or bond) assets. "Denmark, Sweden, UK" is euro area (equity or bond) assets held by Denmark, Sweden and the UK divided by their total cross-border (equity or bond) holdings.

Euro area cross-border portfolio investments up strongly since 1999 ...

... also due to lifting of restrictions on non-domestic investment

Euro has increased portfolio flows between individual euro area countries

controlling for the variables mentioned above, the total impact of the euro for bilateral transactions between individual euro area countries has been estimated to be an increase of 3.5% in equity securities and 4.2% in bonds and notes of their respective total international holdings.<sup>13</sup> Moreover, non-euro area countries have on average increased their relative investment in euro area bonds and notes. These results seem consistent with developments in Chart 5.

Overall, the euro promoted the flow of capital among euro area members, thereby permitting a better diversification of investment and consumption risks.

### 5.3 INTERNATIONAL ROLE OF THE EURO

Euro is used widely outside the euro area

A third international dimension of the euro relates to its use outside the euro area. While it was introduced for the benefit of the euro area population, it clearly also has implications for people and firms outside the euro area. Households, enterprises and governments outside the euro area can choose to use the euro in many of their daily economic and financial transactions. They may hold euro banknotes and coins. They may open bank accounts denominated in euro or take out bank loans in euro. They may issue financial instruments, such as bonds and notes, denominated in euro. They may invoice and pay in euro internationally. Authorities in third countries may also choose the euro as an anchor in their exchange rate regime or decide to invest part of their foreign exchange reserves in euro.

Euro use by non-residents not a Eurosystem policy goal

From a policy perspective, the Eurosystem has adopted a neutral stance on the international use of its currency. It does not pursue the internationalisation of the euro as a policy goal and neither fosters nor discourages its use by non-residents of the euro area. The currency's use outside the euro area's borders is and should remain the outcome of economic and financial developments, based on free private (and sometimes public) decisions. In any case, in a globalised world with deeply integrated and market-based financial systems, policy-makers have limited scope to influence the internationalisation of a currency, even if they want to do so. Deepening financial markets, fostering financial market integration, and promoting price stability are examples of policies that can indirectly promote the use of a currency abroad. For example, the use of a currency as a reserve currency appears to be related to such policies.<sup>14</sup> But it is also clear that such policies have domestic, rather than international, objectives.

ECB closely monitors international role of euro

The neutral policy towards the euro's international role does not imply a lack of interest by the Eurosystem. The ECB has monitored and analysed the international role of the euro and published the main findings in annual reviews from 2001 onwards. Why has there been such steady interest? One reason is that the use of the single currency outside the euro area may have an impact on monetary policy transmission and on the information content of indicators used under the monetary policy strategy. Another reason is that the international role of the euro could affect the transmission of global financial and exchange rate shocks to the euro area. Finally, the ECB's monitoring of the international role of the euro has provided the general public and academic researchers with an interest in international currencies with a unique and expanding dataset on the use of the euro by non-residents.

13 De Santis, R. and B. Gerard (2006), "Financial integration, international portfolio choice and the European Monetary Union", ECB Working Paper Series, No 626. De Santis, R. (2006), "The geography of international portfolio flows, international CAPM and the role of monetary policy frameworks", ECB Working Paper Series, No 678.

14 See Chinn, M. and J. Frankel (2006), "Will the Euro Eventually Surpass the Dollar as Leading International Reserve Currency?", in G7 Current Account Imbalances: Sustainability and Adjustment, Richard Clarida (ed.), The University of Chicago Press, Chicago; and Chinn, M. and J. Frankel (2008), "The Euro May Over the Next 15 Years Surpass the Dollar as Leading International Currency", NBER Working Paper No 13909, April 2008.

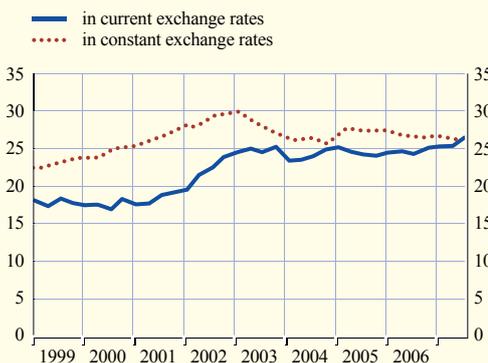
The annual reviews of the international role of the euro have been marked by three broad themes. First, its role in international markets has increased somewhat over the years, but the pace of change has been gradual and appears to have levelled off in some market segments. Second, the international dimension is also partly driven by the euro area itself. Third, this role is geographically concentrated in the regions that are close to the euro area.

From the start in 1999, the euro was “international” simply because it replaced 11 existing currencies. As a successor to the Deutsche Mark and the French franc, the euro was used immediately as a reserve currency by central banks and as an anchor for the exchange rate policy of some countries. However, the international role of the euro has grown beyond this legacy. For example, the current share of the euro in global official reserves is higher than the share of the sum of all legacy currencies of the euro – notably that of the Deutsche Mark – in global official reserves at the end of 1998, which was about 18%. In fact, according to the IMF, the share of the euro in global foreign exchange reserves with a known currency composition increased during the first five years of Economic and Monetary Union to around 25%. Since then, the euro’s share has remained relatively stable (Chart 6). In response to its use as an international reserve currency, in January 2005 the Eurosystem introduced a framework for reserve management services for central banks and monetary authorities located outside the euro area as well as international organisations.

A second feature of the international role of the euro is that it is partly driven by the euro area itself. In other words, the domestic users of the euro, that is, euro area citizens, also influence the status of their currency internationally. For example, borrowers outside the euro area are increasingly issuing bonds in euro. In fact, the share of the euro in the “narrow measure” of international debt securities, i.e. excluding home currency issuance, increased to around 31% as at June 2007 (Chart 7). However, these bonds have not been chiefly purchased by investors outside the euro area. Indeed, more than half of these euro-denominated securities issued by non-residents are targeted at, and purchased by, euro area investors.

Chart 6 Share of the euro in global foreign exchange reserves

(as a percentage of allocated reserves)

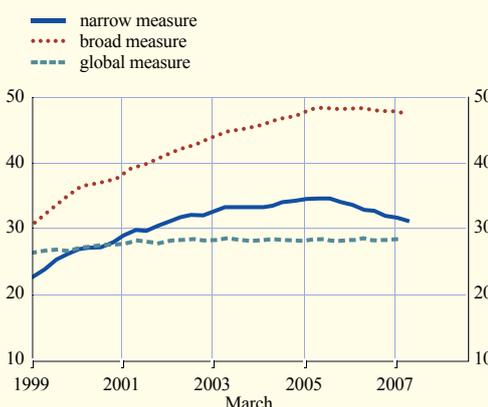


Source: IMF/COFER database and ECB calculations.  
Note: The shares in constant exchange rates are reported in Q3 2007 exchange rates.

Euro's role abroad has increased, but pace of change gradual

Chart 7 Share of the euro in stock of outstanding international debt securities

(as a percentage at constant exchange rates)



Sources: BIS and ECB calculations.  
Note: The shares in constant exchange rates are reported in 2007 Q3 exchange rates. The narrow measure of international debt securities is defined as the issuance of bonds and notes as well as money market instruments in a currency other than the home currency of the borrower. The broad measure adds to the narrow measure the issuance of debt securities denominated in the home currency of the borrower, provided that this issuance “targets” the international financial market. The global measure of debt securities adds to the broad measure all domestic issues targeting the domestic market. For a more detailed discussion of these measures, see the ECB publication entitled “Review of the International Role of the Euro”, June 2007.

Euro area residents also affect international role

## Outstanding volume of international bonds and notes by region

(percentages, 2007 Q2)

	Euro area	Denmark, Sweden, United Kingdom	New Member States	Non-EU Europe	North America	Asia & Pacific	Latin America	Offshore centres	International organisations	Other
EUR		44.7	3.1	3.8	23.6	5.5	2.0	10.0	6.3	1.0
USD	23.7	19.0	0.3	2.4	4.9	10.8	6.6	23.1	5.0	4.2
JPY	30.0	12.7	1.2	2.9	18.6	4.9	0.6	21.1	7.6	0.5

Sources: BIS and ECB calculations.

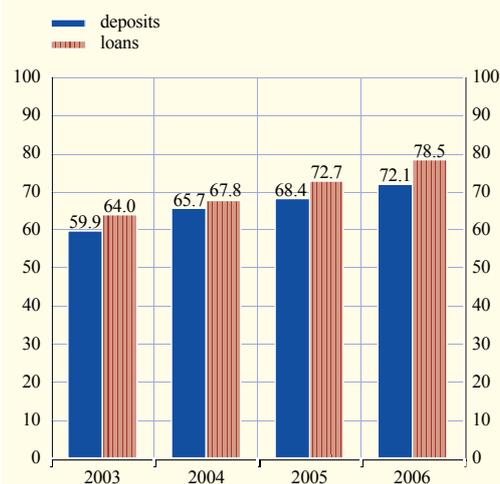
**Euro's international role is geographically concentrated near the euro area**

The last and perhaps most distinctive feature of the international role of the euro is its regional character. In international financial markets, for instance, it is natural for countries close to the euro area to choose the euro as a financing currency. For example, issuers resident in Denmark, Sweden and the United Kingdom account for a significant part of euro-denominated debt issuance by non-residents (see table) and the City of London, as a major international financial centre, has developed its transactions in euro along with those in US dollars.<sup>15</sup> Likewise, all countries running a euro-related exchange rate policy are near the euro area. Finally, the degree of currency substitution is highest in the new non-euro area EU Member States as well as in the EU candidate and potential candidate countries in south-eastern Europe (Chart 8). In this context, the Eurosystem has stressed that any unilateral adoption of the single currency by means of “euroisation” outside the Treaty framework would run counter to the economic reasoning underlying Economic and Monetary Union, which foresees the eventual adoption of the euro as the end-point of a structured convergence process within a multilateral framework.<sup>16</sup> The ECB has also carefully studied the determinants of the rise in foreign currency borrowing in central, eastern and south-eastern Europe<sup>17</sup> and the Eurosystem is permanently monitoring the extent to which such borrowing may have an impact on financial stability in these countries.<sup>18</sup>

The regional character of the euro's international use reflects a combination of historical, institutional and economic factors. Historically, the euro built on a long tradition of its legacy currencies, in particular the Deutsche Mark, as a currency that was widely used in certain parts of the European continent and nearby. Institutionally, many of the countries around the euro area are moving towards the adoption of the euro. This applies to the non-euro area members without an opt-out clause, which are expected to join the euro area at some point. It

**Chart 8 Euro-denominated deposits/loans in central, eastern and south-eastern Europe**

(as a percentage of total deposits/loans)



Sources: National central banks and ECB staff calculations.  
Notes: Unweighted average for Albania, Bosnia and Herzegovina, Croatia, the Czech Republic, Estonia, Hungary, Latvia, the former Yugoslav Republic of Macedonia, Serbia, Slovakia and Turkey. For Bosnia and Herzegovina, data up to end-2004 do not include loans indexed to euro.

15 The role of the euro in the City of London is analysed in ECB (2003), Review of the International Role of the Euro, December.

16 See ECB (2003), Policy Position on Exchange Rate Issues Relating to the Acceding Countries, December.

17 A detailed analysis of currency substitution in central, eastern and south-eastern Europe is provided in ECB (2007), Review of the International Role of the Euro, June.

18 See, for instance, ECB (2006), Macroeconomic and Financial Stability Challenges for Acceding and Candidate Countries, Occasional Paper Series, No 48, July.

applies also to the candidate countries that have a medium to long-term perspective of joining the European Union and ultimately adopting the euro. Economically, the euro area is a major trade and financial partner for the countries concerned. However, it will depend very much on the country-specific situation whether it is of benefit to follow a policy of targeting a fixed exchange rate to the euro at an early stage of the convergence process. As the convergence process implies a trend towards real appreciation of the exchange rate over time, several countries have chosen to focus their monetary policy on domestic price stability while allowing their nominal exchange rate to appreciate to the euro.

#### 5.4 INTERNATIONAL COOPERATION

The ECB has developed close relations with central banks and organisations outside the euro area. Such international cooperation takes place both through multilateral institutions and bilateral contacts. The international cooperation activities help the ECB in its monitoring of economic and financial developments outside the euro area. International meetings provide a platform for an exchange of information on recent developments, economic prospects, and economic policy challenges outside the euro area.

The Eurosystem has developed a series of tools to intensify its cooperation with major central banks across the world. It has set up a series of high-level seminars with central banks of specific regions, including with the Bank of Russia, the Mediterranean central banks participating in the EU Barcelona process, the central banks and monetary authorities of the Gulf Cooperation Council (GCC), and central banks from Latin America and from the East Asia-Pacific region. The ECB also provides technical assistance and policy advice on request and is ready to share its expertise in various policy areas, including monetary policy implementation, banking supervision and payment systems. In that context, the European path to Economic and Monetary Union, in particular the setting-up of a supranational central banking system, often serves as an example and source of inspiration for other regions.

The ECB plays a key role in various multilateral organisations and fora. At the International Monetary Fund (IMF), which is a country-based institution, the ECB has been granted observer status, meaning that it may attend IMF board meetings whenever matters of relevance to the Eurosystem are discussed. Moreover, the President of the ECB is invited to attend – as an observer – the biannual meetings of the International Monetary and Financial Committee, which provides political guidance to the work of the IMF. The ECB President also participates, alongside the President of the Eurogroup, in the G7 Ministers and Governors meetings. The ECB also attends the meetings of two fora created by the G7 in 1999: the group of 20 finance ministers and central bank governors (G20), which brings together representatives of key advanced and emerging market economies to discuss international economic and financial policy issues, and the Financial Stability Forum (FSF), which assesses potential vulnerabilities in the international financial system. In addition, the ECB attends relevant meetings of the Organisation for Economic Co-operation and Development (OECD), also a country-based institution, as part of the EU delegation.

Of particular importance is the Bank for International Settlements (BIS), the “central bankers’ bank”, which acts as the secretariat and host for various meetings of central banks, including the governors of the Group of Ten. The ECB became a member of the relevant BIS committees in November 1999 and has been a shareholder since 2005. The ECB President participates in G10 governors’ meetings and, since end-2003, has chaired these meetings in his personal capacity.

Multilateral and bilateral  
cooperation

IMF, G7, G20, FSF and BIS

The G10 in turn has a number of permanent committees and ad hoc working groups to which the ECB also belongs.<sup>19</sup>

## 5.5 LESSONS AND WAY FORWARD

Since 1998, the degree of openness of the euro area to external global trade and financial markets has been steadily increasing, while intra euro-area trade and investment have also expanded significantly. The euro has had a positive effect on euro area trade, stimulating the export of new products, and reducing somewhat the costs of exporting. These results are consistent with evidence of euro-induced changes in the trade pricing behaviour of firms, which appear to have encouraged price convergence within the euro area, a development which in turn has also put downward pressure on intra-euro area export prices. Finally, the euro has increased domestic competition in the countries that have adopted the single currency, leading to an overall increased competitiveness of their firms and suggesting that fiercer competition may also have been the trigger for the observed increase in convergence of trade prices.

As regards capital flows, the establishment of EMU has been a fundamental institutional change which could help explain the large reallocation of capital that has taken place. With respect to direct investment, empirical results suggest that the euro has favoured FDI flows across euro area countries and acted as a catalyst generating waves in cross-border M&As in manufacturing. Euro area countries have enjoyed an extraordinary increase in intra-area M&As in the manufacturing sector, while the services sector has not yet fully benefited from European financial integration. Looking ahead, this also implies that further M&As will most likely occur if cross-border barriers are dismantled in the service industries. Turning to portfolio investment, in addition to the elimination of the exchange rate risk, the adoption of the euro has facilitated the cross-border allocation of portfolio activity among euro area members in both equity and bonds markets, helped by factors such as cost reductions in both equity capital and bond and bank financing, the use of common trading platforms as well as the cross-border merger of the Amsterdam, Brussels and Paris exchanges (forming Euronext).

The introduction of the euro has also had an impact on the international financial system as it created a new currency that can be used in international markets. From its introduction in 1999, the euro immediately gained international status as it took over the international role of its legacy currencies. Since then, its role in international markets has increased somewhat, but the pace of change has been very gradual. This is in line with the findings of the economic literature: the international role of currencies tends to be slow moving, reflects historical and institutional factors, and is characterised by network effects.

These international dimensions of the euro area underscore the need for international cooperation with central banks across the world. Over the past ten years, the Eurosystem has therefore developed a close dialogue with central banks in various regions by, for example, organising high-level Eurosystem seminars and developing close bilateral relations with major central banks such as the US Federal Reserve and the Bank of Japan. Likewise, the ECB attends meetings of various international organisations and fora, including the IMF, the G7, the G20 and the BIS.

<sup>19</sup> The four most prominent of these are the Basel Committee on Banking Supervision; the Committee on Payment and Settlement Systems; the Committee on the Global Financial System; and the Markets Committee.



## 6 FINANCIAL INTEGRATION

*There are several reasons, related to its core tasks, why the Eurosystem has a keen interest in financial integration. First and foremost, a well-integrated financial system contributes to a smooth and effective transmission of monetary policy throughout the euro area. Second, financial integration is of great importance to the Eurosystem's task of contributing to financial stability as it enhances opportunities for sharing and diversifying risk and increases the liquidity of financial markets. At the same time, a more integrated financial system increases the scope for spillover effects and contagion across borders. Third, the financial integration objective is closely related to the Eurosystem's task of ensuring the smooth functioning of payment systems, which also relates to securities clearing and settlement systems. More integrated payment and settlement systems will operate both more efficiently and more effectively and are, at the same time, given the central function of payment systems in the transfer of financial flows, key to the financial integration process. Finally, financial integration plays an important role in ensuring that the financial system allocates, efficiently across time and space, resources from market participants with a surplus of funds to those with a shortage, ultimately leading to higher and sustainable economic growth.*

*The Eurosystem therefore strongly supports further financial integration in Europe and, particularly, in the euro area. More specifically, the Eurosystem aims to make progress – in line with the ECB's definition of financial integration – towards a single financial market in the euro area in which all potential market participants (i) are subject to a single set of rules when they decide to buy or sell the underlying financial instruments or services, (ii) have equal access to the same financial instruments or services, and (iii) are treated equally when they operate in the market.*

*This chapter reviews the progress in financial integration in the euro area and the respective contribution of the Eurosystem. It is structured as follows. Section 6.1 describes the Eurosystem's activities to promote financial integration. Section 6.2 reviews the state of financial integration in Europe ten years after the introduction of the euro. Section 6.3 assesses the major driving forces and barriers in the integration process, focusing on the role of the Eurosystem. Section 6.4 concludes.*

### 6.1 EUROSISTEM ACTIVITIES FOR FINANCIAL INTEGRATION

In the Eurosystem's view financial integration is first and foremost a market-driven process. According to the general provision set out in Article 105 (1) of the Treaty on European Union, the Eurosystem should act “in accordance with the principle of an open market economy with free competition, favouring an efficient allocation of resources”. Given its central banking tasks and its role as an active market participant with numerous relationships with other market actors, the Eurosystem can act to promote financial integration.

In line with its position that the financial integration process should be market-led, the Eurosystem considers that the role of public policy in fostering financial integration should be limited. In particular, policy measures should not promote a specific level or type of cross-border activity, as only market participants themselves are in a position to develop the underlying business strategies, take the respective investment decisions and assume responsibility for the economic consequences. The process of financial integration is, in addition, affected by a number of factors that lie beyond the remit of public policy, such as geographical distance (and the related information barriers), differences in culture and language, and consumer preferences. Nevertheless, the public sector has an important contribution to make to financial integration through the reduction of policy-related obstacles. The public sector should provide a legal, regulatory, supervisory and fiscal framework that fosters the equal treatment of, and equal access for, market participants across the EU.

**Financial integration is market-led process ...**

**... but public policy can promote progress**

**Eurosystem fosters financial integration ...**

The Eurosystem fosters the financial integration process in four main ways, namely by (i) enhancing knowledge, raising awareness and monitoring progress in financial integration in the euro area, (ii) giving advice on the legislative and regulatory framework for the financial system, (iii) acting as a catalyst for private sector activities by facilitating collective action, and (iv) providing central banking services that also promote financial integration.

**... by enhancing knowledge, raising awareness and monitoring progress ...**

Prerequisites for targeted action to foster financial integration are a precise analysis of the state of European financial integration and a close monitoring of progress over time. The ECB has therefore sought to measure the state of financial integration in the euro area by means of price-based and quantity-based indicators. Price-based indicators measure discrepancies in asset prices based on their geographical origin. In a perfectly integrated market, prices of assets with similar characteristics should be influenced primarily by common factors. Quantity-based indicators are used to investigate to what extent investors have internationalised their portfolios to fully reap the benefits from the diversification possibilities that follow from increased financial integration.<sup>1</sup>

In September 2005 the ECB published an initial set of 20 indicators, which has since been extended. In March 2007 they were presented in the first publication of the ECB's annual report entitled "Financial integration in Europe"<sup>2</sup>; the indicators are updated semi-annually on the ECB's website. Work to extend the list further, on the basis of advances in research and economic analysis and subject to the improved availability of statistics, is under way, notably with respect to investment funds, securitisation vehicles, insurance corporations and pension funds.

In addition to the ECB's annual report on financial integration, a number of other regular and ad hoc publications provide information about developments. For instance, the ECB's annual report entitled "EU banking structures", prepared by the ESCB's Banking Supervision Committee, offers an analysis of structural developments in cross-border banking. Based on its experience and knowledge as an active market participant, the ECB also sponsors coordinated research with other members of the Eurosystem and academics. An important example of this is the joint research network on capital markets and financial integration in Europe sponsored by the ECB and the Frankfurt-based Center for Financial Studies.<sup>3</sup>

**... by giving advice on legislative and regulatory framework ...**

With a view to ensuring that the legislative and regulatory framework for financial services reduces obstacles to cross-border finance and safeguards a level playing-field among market participants, the Eurosystem actively contributes to the development of the EU framework for financial services by advising on the main policy reflections and initiatives. This work focuses on issues relating to the Eurosystem's statutory tasks set out in Article 105 of the Treaty, namely to support, without prejudice to the objective of price stability, the general economic policies in the Community, to promote the smooth operation of payment systems, and to contribute to the smooth conduct of policies relating to the prudential supervision of credit institutions and the stability of the financial system.

**... by acting as catalyst for private sector activities ...**

While the public framework should be conducive to financial integration, progress with integration ultimately depends on private-sector action making full use of the existing cross-border business opportunities. Competition among market players is a major driving force in this respect. At the

1 See L. Baele et al., "Measuring financial integration in the euro area", ECB Occasional Paper No 14, May 2004.

2 Previously, the ECB had explained its work in the field of financial integration in two Monthly Bulletin articles entitled "The integration of Europe's financial markets" (October 2003) and "The contribution of the ECB and the Eurosystem to European financial integration" (May 2006).

3 See <http://www.eu-financial-system.org>.

same time, effective collective action can also be important, especially where heterogeneous market standards and practices hamper the financial integration process. The Eurosystem can help market participants to overcome coordination difficulties in this regard.

Providing central bank services is another way in which the Eurosystem seeks to advance financial integration. While the main purpose of such services is to enable the Eurosystem to perform its basic central banking tasks, the Eurosystem also pays close attention to ensure that, where possible, these services are specified in a way that favours financial integration.

Table 1 provides an overview of some key examples of Eurosystem activities for financial integration.<sup>4</sup>

4 More comprehensive information is provided in the ECB's annual report entitled "Financial integration in Europe".

... and by providing central  
bank services that foster  
financial integration

**Table 1 Key Eurosystem activities for financial integration**

Subject	Main objectives and state of play
<b>Enhancing knowledge, raising awareness and monitoring progress</b>	
ECB's annual report entitled "Financial integration in Europe"	First issued in 2007 with the aim of informing about the state of financial integration in Europe, promoting its advancement and raising public awareness concerning the Eurosystem's role in supporting the integration process.
Development of indicators of financial integration in the euro area	First set of indicators published in 2005 with the aim of assessing and monitoring the state of financial integration in the euro area. Semi-annual updates and extensions of the set of indicators since then. Further enhancements underway.
<b>Providing advice on the legislative and regulatory framework</b>	
Overall EU financial services policy strategy	To develop and implement (i) the 1999 Financial Services Action Plan to update and enhance the EU regulatory framework and (ii) the respective follow-up strategy for the period 2005-10. The implementation of the latter is still ongoing.
EU institutional setting for financial regulation and supervision	To ensure the smooth functioning of the Lamfalussy framework. A first full review of the Lamfalussy framework was concluded in 2007; the development of follow-up measures is underway.
EU securities clearing and settlement infrastructure	To achieve an integrated, safe and efficient post-trading market infrastructure and remove cross-border obstacles. Various ongoing initiatives that e.g. aim to develop a common framework for the regulation, supervision and oversight of securities clearing and settlement systems (ESCB-CESR).
<b>Acting as a catalyst for private sector activities</b>	
Single Euro Payments Area (SEPA)	Initiative to achieve a fully integrated market for retail payment services in the euro area with no distinction between cross-border and national payments by 2010. The official start of SEPA was in January 2008.
Short-Term European Paper Initiative (STEP)	Development of a pan-European short-term paper market through market participants' voluntary compliance with a core set of common standards. STEP went live in June 2006.
Euro Overnight Index Average (EONIA)	Establishment of a reference interest rate for unsecured overnight interbank deposits. Computed on an ongoing basis since 1999.
<b>Providing central bank services that also foster financial integration</b>	
TARGET and TARGET2	Establishment of a Eurosystem facility for the real-time gross settlement of large-value payments in the euro area with TARGET in 1999; subsequent move towards a single shared technical platform with the launch of TARGET2 in 2007.
TARGET2-Securities	Eurosystem initiative, launched in 2006, to provide a single platform enabling settlement of securities in central bank money in Europe. A final decision on the project will be taken in mid-2008.
Correspondent Central Banking Model (CCBM)	Scheme for the cross-border transfer of collateral within the Eurosystem, introduced in 1999, whereby NCBs act as "correspondents" for each other and for the ECB. Initiative for a single shared platform (CCBM2) underway since 2007.

**Table 2 State of financial integration in the euro area: overview of the main financial segments**

Market	State of integration	Related infrastructures
<b>Money markets</b>		
Unsecured money market	“Near perfect”	Uncollateralised money market: fully integrated
Collateralised money market	Advanced	Collateralised money market: cash leg fully integrated; collateral leg hampered by fragmentation (see bond markets)
<b>Bond markets</b>		
Government bond markets	Very well advanced	Fragmented
Corporate bond markets	Fair	Fragmented
<b>Equity markets</b>		
	Low	Highly fragmented
<b>Banking markets</b>		
Wholesale activities	Well advanced	Fully integrated
Capital-market related activities	Advanced	Fragmented
Retail banking	Very low	Highly fragmented

## 6.2 FINANCIAL INTEGRATION TEN YEARS AFTER THE INTRODUCTION OF THE EURO

### OVERVIEW

Considerable progress in financial integration

The ECB’s financial integration indicators reveal that the progress achieved in the euro area varies considerably across market segments. In particular, integration is more advanced in the areas closer to the single monetary policy. Furthermore, it also depends on the degree of integration of the respective market infrastructure. Table 2 above gives an overview of the state of financial integration in the euro area in the main market segments.

The following sections provide a more in-depth assessment of the progress achieved in financial integration in the money markets, bond and equity markets and the banking markets, and highlight the main shortcomings.

#### Box 1

##### PRELIMINARY FINDINGS OF THE ECB’S WORK ON FINANCIAL DEVELOPMENT

Some frictions in financial markets can persist even if financial integration is complete. Financial development helps to overcome these frictions. It can be understood as a process of financial innovation and institutional and organisational improvement in the financial system that reduces asymmetric information, increases the completeness of markets, lowers transaction costs and strengthens competition.

While financial development and financial integration are interrelated, and both of them affect financial efficiency favourably, they are also distinct as they describe different economic processes. For example, adverse selection problems among investors that impair the allocation of capital may persist even in a fully integrated market. Thus, financial development is complementary to financial integration in fostering financial market efficiency.

Complementary assessment of state of financial development

Against this background, the ECB has launched an analytical work stream to specify the concept of financial development and to establish quantitative indicators for measuring the state of financial development in the financial system. A first set of such indicators was presented in the 2008 edition of the ECB's report "Financial integration in Europe"<sup>1</sup>.

Financial development is an area of ongoing research and, consequently, not all aspects of a financial system may be fully captured by quantitative indicators. For instance, while formal laws and rules are easier to measure, informal rules and practices may be just as important. In addition, information is often available on wholesale, market-based transactions, but not on retail, relationship-based activities.

These caveats notwithstanding, the available indicators suggest a fair degree of heterogeneity across markets and countries in the euro area. The main differences are related to the degree of legal efficiency, the type and extent of securitisation, the level of stock market trading activities and the number of cashless transactions per capita.

Relative to the group of benchmark countries, the euro area financial system compares well on average, except perhaps relative to the United Kingdom and the United States, which perform well across most of the indicators. These results suggest that there is further scope for structural reforms of financial sectors in the euro area and that it is beneficial to look at financial integration as well as at financial development.

<sup>1</sup> See the special feature entitled "Financial development: concepts and measures" in the 2008 edition of the report, which built on earlier ECB publications in this field, namely P. Hartmann, F. Heider, E. Papaioannou and M. Lo Duca, "The role of financial markets and innovation in productivity and growth in Europe", ECB Occasional Paper No 72, September 2007, and the article entitled "Assessing the performance of financial systems" in the October 2005 issue of the ECB's Monthly Bulletin.

## MONEY MARKETS

The euro area money market – the market segment closest to the single monetary policy – reached a stage of "near perfect" integration almost immediately after the introduction of the euro. The cross-sectional standard deviation of the EONIA lending rates across euro area countries fell sharply to close to zero following the introduction of the euro and has remained stable since (see Chart 1).

A significant exception to the overall high level of integration of euro area money markets is the segment for short-term debt securities (i.e. commercial paper and certificates of deposit), which has remained much more fragmented.

The emergence of liquidity problems in the short-term money markets in the context of the global financial market turbulence during the second half of 2007 has had an impact on the volatility of very short-term money market rates, notably the overnight rates. A probable explanation for this lies in the increased variability in credit risk among banks, rather than in the higher fragmentation, or lesser integration, of the market.

## BOND AND EQUITY MARKETS

Before the introduction of the euro, several factors acted as disincentives to cross-border financial activities, including especially the exchange rate risk, cross-country differences in inflation and interest rates, the substantial transaction costs of operating in different currencies and currency restrictions for investors and intermediaries. The adoption of the euro removed these obstacles and

Money markets almost fully integrated ...

... except for short-term debt securities segment

Clear signs of integration ...

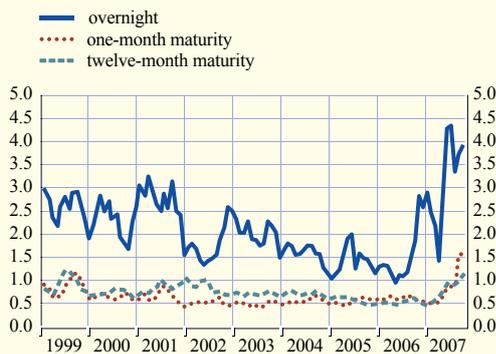
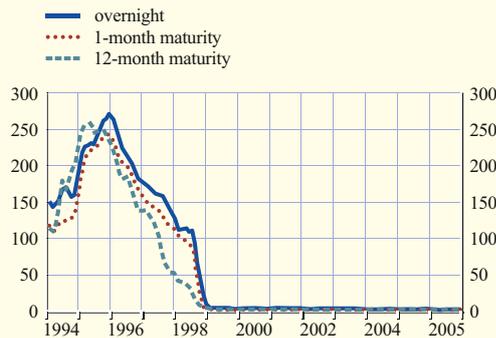
... especially in government bond markets

Progress also in corporate bond markets ...

... and to a lesser degree in equity markets

**Chart 1 Cross-country standard deviation of average unsecured interbank lending rates across euro area countries**

(61-day moving average; basis points)



Sources: EBF and ECB calculations.

gave momentum to securities market integration, although to different degrees depending on the market segment.

Progress in financial integration has been fastest in the government bond market, where yields have converged and are increasingly driven by common factors, although local factors – such as differences in liquidity and the availability of developed derivatives markets tied to the various individual bond markets – continue to play a role. The remaining divergences may also reflect (perceived) differences in credit risk, but this should not be seen as an indication of a lack of integration.<sup>5</sup>

Similarly, the advent of monetary union has also brought progress in the integration of the corporate bond market, as the various markets previously segmented by currency have merged into a single, diversified euro market. As a result, country-specific factors have become less important in determining corporate bond prices and spreads.

The share of cross-border holdings also confirms the finding that government and corporate bond markets are quite well integrated. For instance,

cross-border holdings of long-term debt securities have significantly increased during the last ten years. In the case of monetary financial institutions (MFIs)<sup>6</sup>, they grew from about 15% in 1999 to nearly 40% in 2007 (see Chart 2). Moreover, the holdings of debt securities issued by non-financial corporations have risen markedly from a very low level, suggesting that investors are increasingly diversifying their portfolios across the euro area.

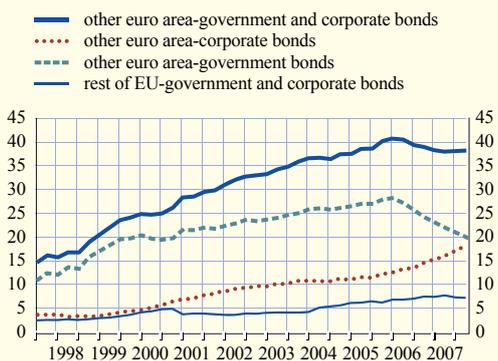
Integration in the equity markets is less advanced but shows signs of improvement. Since the beginning of the 1990s, equity market integration has proceeded more quickly in the euro area than worldwide, although local shocks still explain the bulk of the variance in equity returns (see Chart 3). Between 1997 and 2005, euro area investors doubled their holdings of equity issued in other euro area countries to 29% of their total portfolio of euro area equity assets, whereas the share of euro area equity assets held outside the euro area remained at a much lower level and increased only slightly.

<sup>5</sup> In particular, the substantial increase in euro area sovereign spreads to the German benchmark since July 2007 seems to have been driven mainly by liquidity concerns related to the financial market turmoil, rather than by differences in sovereign credit risk.

<sup>6</sup> Monetary financial institutions comprise the financial institutions that together form the money-issuing sector of the euro area. These include the Eurosystem, credit institutions resident in the euro area and all other financial institutions resident in the euro area whose business is to receive deposits and/or close substitutes for deposits from entities other than monetary financial institutions 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.

**Chart 2 Share of MFIs' cross-border holdings of debt securities issued by euro area and EU non-MFIs: outstanding amounts by residency of the issuer**

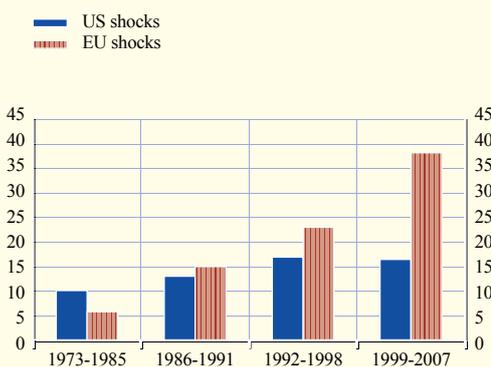
(as a share of total holdings, excluding the Eurosystem; percentages)



Source: ECB.

**Chart 3 Proportion of variance in local equity returns explained by euro area and US shocks**

(percentages)



Sources: Thomson Financial Datastream and ECB calculations.

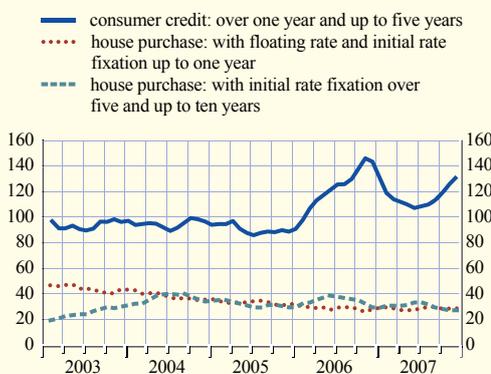
**BANKING MARKETS**

While the euro area banking markets for wholesale and capital market-related activities show clear signs of increasing integration, the retail banking segment has remained more fragmented. In particular, the euro area cross-country dispersion of bank interest rates, especially of interest rates on consumer loans, has remained relatively high (see Chart 4).

Differences in bank interest rates can reflect several factors, such as different conditions in national economies (e.g. credit and interest rate risk, size of firms, industrial structure and degree of capital market development), institutional factors (e.g. taxation, regulation, supervision and consumer protection) and financial structures (e.g. degree of bank/capital market financing and competitiveness).<sup>7</sup> Despite the significant differences, there are nevertheless indications of a gradual convergence process.

**Chart 4 Cross-country standard deviation of MFI interest rates on loans to households**

(basis points)



Source: ECB.

Overall progress, but retail integration lagging behind

7 See the ECB report entitled "Differences in MFI interest rates across euro area countries", published in September 2006.

## 6.3 DRIVING FORCES AND BARRIERS IN FINANCIAL INTEGRATION

### 6.3.1 MONEY MARKETS

#### MARKET INFRASTRUCTURE INTEGRATION AS A STIMULUS FOR PROGRESS

A key factor in achieving and sustaining money market integration has been the high degree of integration of euro large-value payment systems, which has allowed the safe and efficient euro area-wide handling of interbank payment transactions.

Before the launch of the euro, each country in the soon-to-be euro area had its own currency, monetary policy, national money markets and payment and settlement infrastructure. While such national markets and infrastructures had served those countries well for many decades, from the perspective of the new euro area they were not sufficient. Fragmentation and a lack of common infrastructures hampered cross-border activities. It was evident that such a fragmented market infrastructure would not sufficiently support the ECB's monetary policy and the euro money market. Thus, it was decided to set up new facilities for the settlement of euro payments in central bank money and for the cross-border delivery of collateral in Eurosystem credit operations. These Eurosystem facilities were named the TARGET<sup>8</sup> system and the Correspondent Central Banking Model (CCBM).

The central bank is “the bank of the banks”. When banks make large payments to one another, they prefer to settle such transactions in the books of the central bank to avoid interbank credit risk exposures. In a real-time gross settlement system payments are received in central bank money, with intraday finality, and such funds are immediately available for re-use. With the introduction of TARGET by the Eurosystem in January 1999, such a service was made available for the euro.

Since its launch, the system has become a benchmark for processing euro payments in terms of speed, reliability, opening times and service level. Payments directly related to operations involving the Eurosystem are settled through TARGET. Thus, the settlement of a monetary policy operation affects the accounts of those counterparties taking part in the operation concerned. Not all credit institutions take part in operations with the Eurosystem and therefore the liquidity effect of such operations is subsequently re-distributed within the banking system through the money market. Money market transactions result in payments that, again, are largely settled through TARGET. The open access to the system ensures that all credit institutions can have direct access to a common set of settlement facilities in central bank money without having to rely on commercial competitors. Thus, counterparts throughout the euro area can transfer central bank funds directly between one another, with immediate intraday finality. This service is also available in some non-euro area EU countries, the central banks of which have connected to the system on a voluntary basis.

As the infrastructure backbone for large-value and time-critical interbank payments, and in order to meet the needs of its customers and those of financial markets in general, TARGET has long opening hours and is open every day except Saturdays and Sundays and six other days in the year. The operating days are, de facto, the settlement days for the financial markets in euro, as well as for foreign exchange transactions involving the euro.

<sup>8</sup> Trans-European Automated Real-time Gross settlement Express Transfer.

Eurosystem's TARGET and CCBM services support euro and money market

TARGET facilitates safe and efficient settlement ...

... and monetary policy implementation

The initial design of TARGET was based on the principle of minimum harmonisation and on a decentralised architecture, linking together the different systems that existed at national level. However, in response to the growing demand from financial institutions for more advanced and harmonised services, the Eurosystem started in October 2002 to develop an enhanced application, which would make it possible to change from a “system of systems” to a single shared platform. This second generation system, TARGET2, was launched on 19 November 2007 and fully replaced the former TARGET system on 19 May 2008.

**Move to single platform completed**

The new system is expected to further enhance the integration of wholesale payments by providing its participants with a harmonised service level, a single price structure for both domestic and cross-border transactions, and a harmonised set of cash settlement services in central bank money for the final settlement of the large majority of payment and securities transfer systems operating in euro. Moreover, the new facility allows banks to further optimise payment and liquidity management. Whereas multi-country users had to maintain a large number of technical communication interfaces with the previous system, they are now able to monitor the accounts of their branches in different countries from one central location. In addition, these users can also centralise their payment operations, a step that should provide them with further benefits stemming from economies of scale, possible efficiency gains in speed and quality, and a better ability to cope with a rapidly evolving payment market environment.

**TARGET2 to render wholesale payments even more integrated and efficient**

The rapid integration of euro area money markets in January 1999 was greatly facilitated by the settlement services offered by, and the smooth operation of, TARGET. Moreover, while in 1999 there were 21 large-value payment systems in euro, in 2008 there are only three. The establishment, smooth operation and continuous enhancement of the system provides an example of the successful role of Eurosystem services in fostering the integration of market infrastructures and, consequently, the respective financial market segments. Among the current systems, TARGET2 accounts for the highest market share in terms of both value and volume of payments.<sup>9</sup> It currently has a daily turnover of some €2,400 billion. Thus, the turnover of 3½ working days corresponds to the annual total GDP of the euro area! The highest turnover recorded on a single day was €3,387 billion.

**Daily value €2,400 billion**

Another important Eurosystem service contributing to money market integration is the CCBM for the cross-border transfer of collateral within the euro area. According to its Statute, all Eurosystem credit operations have to be based on adequate collateral. Moreover, the Eurosystem operational framework stipulates that all assets eligible for Eurosystem credit operations can be used as collateral by all Eurosystem counterparties, regardless of the location of the asset or the counterparty.

**CCBM facilitated cross-border transfer of collateral ...**

At the time the euro was introduced, the infrastructures of the European securities markets were highly segmented and, in particular, the network of links between securities settlement systems was incomplete. In the absence of an adequate market arrangement for the cross-border mobilisation of collateral, the Eurosystem in 1999 introduced the CCBM as an interim solution, based on the expectation that market solutions would develop over time. With this arrangement, counterparties obtain credit from their “home” central bank based on collateral transferred to another Eurosystem central bank (the “correspondent central bank”). In the meantime, this service has become the main channel for the use of collateral on a cross-border basis in Eurosystem credit operations.

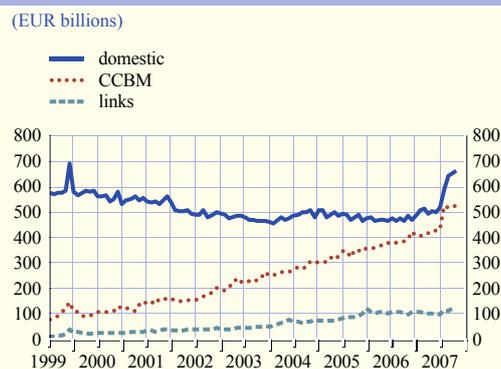
<sup>9</sup> TARGET2 accounts for 89% of the value and 60% of the volume of traffic that flows through all the large-value payment systems operating in euro. It processes a daily average in excess of 360,000 payments and is one of the largest wholesale payment systems in the world, alongside Fedwire in the United States and Continuous Linked Settlement (CLS), the international system for settling foreign exchange transactions.

... supporting growing use of cross-border collateral

The CCBM service has provided an invaluable contribution to the functioning of the Eurosystem collateral framework and has greatly supported the increasing use of collateral on a cross-border basis. Indeed, Eurosystem counterparties have diversified their collateral portfolios by increasing the share of their collateral investments in assets originating from other euro area countries. Moreover, multi-country banking groups have increasingly centralised liquidity and collateral management at group level. Collateral transferred through the service has increased from €162.7 billion in 1999 to €557.9 billion in December 2007, the latter value amounting to 39.6% of the total collateral transferred to the Eurosystem at the time (see Chart 5). In 2006 the cross-border use of collateral represented 50.2%

of total collateral delivered to the Eurosystem, overtaking domestic use for the first time. In 2007, in relative terms, 81.5% of cross-border collateral deliveries were channelled through the CCBM, while the share of collateral transferred using links amounted to 18.5%.

Chart 5 Value of collateral transferred by the counterparties for Eurosystem credit operations



Sources: ECB.

Work under way to further enhance collateral delivery services

Efforts are currently under way to further enhance the Eurosystem's service by establishing a single technical platform (CCBM2) with a view to providing a uniform service for both domestic and cross-border collateral operations. This platform will provide, first and foremost, an enhanced collateral management facility for the Eurosystem, but it will also open up significant opportunities for Eurosystem counterparties to further reduce back-office complexity and cost, and to optimise collateral and liquidity management. In addition, the new system will also provide synergy gains with the TARGET2 and TARGET2-Securities services (see the section on bond and equity markets below). In order to take full account of the counterparties' needs, the Eurosystem is developing the new system in close cooperation with market participants.

#### ACTION TO OVERCOME THE FRAGMENTATION OF THE MARKET FOR SHORT-TERM SECURITIES

STEP initiative to establish common market standards ...

The euro area market for short-term debt securities has remained rather fragmented, as mentioned earlier. Differences in market standards have played an important role in obstructing the emergence of a pan-European market. Against this background, in 2001 Euribor ACI<sup>10</sup> launched the Short-Term European Paper (STEP) initiative with the objective of (i) identifying a set of common market standards and practices suitable to promote market integration and (ii) fostering the voluntary compliance of market participants with these standards by granting a common label to compliant issuance programmes.

... went live in June 2006

In June 2006 Euribor ACI and the Euribor European Banking Federation<sup>11</sup> signed the STEP Market Convention, which lays down the criteria and procedures for granting and withdrawing the STEP label to short-term debt securities issued. The new market has been rapidly accepted. For instance, in September 2007 euro-denominated STEP-labelled securities already accounted for about 30% of all euro-denominated short-term paper placed by non-government issuers worldwide. Similarly,

<sup>10</sup> Euribor ACI is one of the financial market associations that manage the EURIBOR and EONIA indices.

<sup>11</sup> The Euribor European Banking Federation had supported Euribor ACI in the development of the project from May 2005.

in December 2007, the volumes of the respective programmes reached €320 billion, up from €60 billion in July 2006, one month after the signature of the market convention.

While the STEP project has been a market-led initiative to foster integration with the short-term debt securities segment, the Eurosystem has played a key role in making it a success. Following its initial impetus for the launch of the project, the ECB also contributed to its development and implementation. During the preparatory phase, the ECB facilitated coordination among the market players involved, contributed to the development of the market convention and provided legal assistance. The ECB also took action to make the project better known by the market and the public. Since the formal launch of the new market, the ECB and nine Eurosystem NCBs have provided technical assistance to the STEP Secretariat. Furthermore, the ECB has produced regular statistics on yields and volumes in the STEP market and has published the respective information on its website. These statistics, which have been continuously enhanced over time, are fundamental in improving market transparency. This will play an important part in fostering further progress in the integration of the European short-term securities market during the coming years.

### 6.3.2 BOND AND EQUITY MARKETS

#### PROGRESS IN THE EU FRAMEWORK FOR FINANCIAL REGULATION AND SUPERVISION

The progress in the integration of euro area bond and equities markets provides an example of how the public sector can tackle policy-related obstacles to cross-border finance. The introduction of the euro revealed that the full potential of the single currency in fostering financial integration could only be reaped if it were to be complemented by an enhanced EU framework that removed the barriers to cross-border activities and safeguarded the stability of the single market. Two key initiatives in this respect have been pursued in recent years: the Financial Services Action Plan (FSAP) and the establishment of the “Lamfalussy framework” for financial regulation and supervision.

The FSAP, launched in 1999, constituted a major overhaul of EU legislation for financial services. It contained 42 key legislative initiatives proposed by the European Commission to update existing EU rules in the light of market developments and to extend the level of EU regulatory harmonisation in line with the single market objective. While the FSAP targeted the entire financial sector, most of the initiatives related to securities markets. Major measures in this respect included the Markets in Financial Instruments Directive (MiFID), the Transparency Directive, the Market Abuse Directive, and the Prospectus Directive<sup>12</sup>.

Building on the achievements under the FSAP, in December 2005 the Commission adopted a White Paper on EU financial services policy for the years 2005-10. The White Paper states that the main EU financial services policy priority in the coming years, especially in the field of securities markets, will be to ensure the effective and consistent implementation of the FSAP measures and to consolidate and simplify existing EU legislation. Possible further policy initiatives are only envisaged in a limited number of carefully targeted areas, notably clearing and settlement and retail financial services.

The Lamfalussy framework for financial regulation and supervision was implemented in the securities field in 2001 and has significantly enhanced the speed and flexibility of the EU regulatory process. It has also fostered the consistent implementation of EU rules at national level, especially with respect to the

<sup>12</sup> The article entitled “Developments in the EU framework for financial regulation, supervision and stability” in the November 2004 issue of the Monthly Bulletin provides an overview of the main FSAP measures.

Catalytic role of  
Eurosystem instrumental  
in this success

Progress fostered by  
effective public sector  
action ...

... including the Financial  
Services Action Plan ...

... the follow-up policy  
strategy 2005-10 ...

... and the introduction of  
the Lamfalussy framework



securities markets directives adopted under the FSAP. The Lamfalussy framework is based on an innovative four-level approach to financial legislation: the basic principles of the legislation are still laid down by way of the normal legislative process, with adoption by the European Parliament and the Council (level 1). However, technical details of legislation that would need to be kept in line with market and regulatory developments can be adopted by the Commission through a simplified and accelerated procedure (level 2), with the involvement of sectoral regulatory committees, comprising the relevant national and European authorities. Level 3 encompasses the efforts of sectoral committees of national supervisors to ensure a consistent and timely implementation of level 1 and level 2 measures at national level. Finally, level 4 relates to Commission measures to strengthen the enforcement of EU law, underpinned by enhanced cooperation between Member States, their regulatory bodies and the private sector<sup>13</sup>.

The practical functioning of the Lamfalussy framework – which since 2003 has also been implemented in the banking and insurance sectors – has been closely monitored and a number of improvements have already been introduced or are currently under development. The main objective of these measures is to reap the full benefits of the framework in terms of fostering closer supervisory convergence and cooperation in the implementation of EU rules.

The ECB and the Eurosystem have actively contributed to the establishment and implementation of both the FSAP and the Lamfalussy framework and to the respective follow-up initiatives, as set out in Chapter 7.

#### **NEED TO FURTHER ENHANCE THE INTEGRATION OF THE SECURITIES MARKET INFRASTRUCTURE**

The integration of bond and equity markets relies on the integration of the underlying infrastructure, particularly that of the securities settlement systems and central counterparties. However, progress in integrating securities infrastructures has not kept pace with that of large-value payment infrastructures. This is largely because of the much greater intrinsic complexities of securities, which have led to differences in national market practices and legal, regulatory and fiscal regimes. Since the TARGET system was launched in 1999, payments across national borders have represented approximately 20-25% of total volumes and 35% of total values. By contrast, while securities settlement systems have made a special effort to set up links among themselves, their use has been scarce (less than 1% of total volumes/values).

While the post-trading infrastructure is fragmented for bonds, it is even more fragmented for equities. The cross-border settlement for bonds is largely concentrated within two international central securities depositories, whereas the cross-border settlement of equities still relies heavily on national central securities depositories.

The high degree of fragmentation implies substantial post-trading costs for EU cross-border securities transactions, reduces the potential for economies of scale and hampers the emergence of a European level playing-field. Although Europe is comparable with the United States in terms of its economic size, it lags behind in terms of both the volume and cost of securities transactions. The cost gap is particularly large in cross-border settlement.

A number of important and complementary public and private sector initiatives have been put forward to improve the situation. First, barriers to integration stemming from differences in market

<sup>13</sup> See the previously mentioned article for a more detailed description of the Lamfalussy framework.

**Eurosystem has contributed through its advisory role**

**Limited integration of securities market infrastructure ...**

**... results in high transaction fees**

**Several initiatives to improve situation**

practices and legal, regulatory and fiscal provisions have been identified and efforts to remove them are under way. Second, to facilitate integration and competition a “Code of Conduct for Clearing and Settlement” was signed by industry stakeholder groups in November 2006 and its implementation is now being closely monitored. Third, to promote closer convergence of national securities clearing and settlement systems towards the highest standards of safety and efficiency, the ESCB and the Committee of European Securities Regulators are developing joint recommendations for the safety and soundness of the EU post-trading infrastructures.

A missing element in the current strategy for an integrated securities infrastructure for the Single Market is the establishment of a common, neutral settlement platform to foster effective interoperability and competition between the service providers. Tapping into its capability of promoting financial integration through the provision of central bank services, the Eurosystem has recently proposed its TARGET2-Securities (T2S) initiative to close this gap.

This initiative builds on the fact that the services of central securities depositories and central banks are closely associated in the field of securities. A securities trade typically results in the delivery of securities (securities leg) and the transfer of cash funds (cash leg). If the cash leg is settled in a central bank settlement facility, it is referred to as settlement in central bank money. To avoid credit risk, the completion of one leg is conditional on the completion of the other (known as “delivery-versus-payment”). However, while this service is very effective within each country, it is so far barely available at cross-border level in Europe.

Holding securities accounts and central bank money accounts on the same platform for settlement purposes is considered the most efficient way of settling the two legs (securities and cash) of securities trades. With the launch of TARGET2, the Eurosystem now offers a single platform for settling payments (the cash leg) in central bank money. However, securities are still held on multiple platforms (central securities depositories). Outsourcing the central bank money accounts to multiple securities platforms would have largely undone the benefits achieved in moving to a single platform for payments.

Consequently, with the T2S initiative the Eurosystem is proposing that securities platforms outsource their securities accounts to a neutral single platform (the single platform for payments), which it would operate. Each securities platform will be invited to agree to move its settlement to T2S in order to fully integrate all settlement activities and thereby make cross-border settlement as cheap and efficient as domestic settlement is today.

T2S would bring the benefits of both scale and competition. Scale effects would result from the use of a single platform for securities and central bank money settlement. This would not only result in lower fees, particularly for cross-border settlement, but also allow market participants to pool their liquidity and collateral, thus reducing their opportunity costs. As regards competition, securities platforms would continue to provide services other than settlement. However, the use of a common settlement engine would make it easier for market participants and investors to determine where they wish to hold a given security. T2S will encourage securities platforms to offer their participants the opportunity to centralise their securities holdings in one place. It would therefore be easier to choose the service provider on the basis of costs and service level rather than location of the security. This increased competition is expected to drive fees down.

In moving the initiative forward, the Eurosystem seeks to ensure that all relevant stakeholders are involved and have a say. The deliverables of the project so far are the result of months of intensive

**Eurosystem settlement platform (T2S) to complement efforts**

**T2S to render cross-border settlement as cheap and efficient as domestic settlement ...**

**... enable more efficient use of liquidity and collateral ...**

**... and stimulate competition**

**Final decision on project in mid-2008**

cooperation by hundreds of experts from securities depositories, banks and central banks. This way of working is highly appreciated by the industry and will continue in the next phase of the project. The Governing Council is expected to decide in summer 2008 whether to proceed to the next phase of the project. The expected launch date of T2S is in 2013.

### 6.3.3 BANKING MARKETS

#### IMPROVEMENTS IN THE REGULATORY AND SUPERVISORY FRAMEWORK FOR CROSS-BORDER BANKS

Cross-border banking groups are key to the integration process, as they enhance competition and spread innovation in financial products and services as a result of their expansion across jurisdictions. The removal of policy-related obstacles to cross-border banking has therefore become an important issue in recent years. The main priorities in this respect are to remove impediments to cross-border mergers and acquisitions (M&As) and to support the efficient operation of cross-border banking groups on an ongoing basis.

Several initiatives have been adopted to enhance the EU framework for cross-border banks in the areas of banking regulation and supervision, market conduct supervision, taxation and company law<sup>14</sup>. An important strand of work has related to streamlining the supervision of cross-border groups and fostering convergence of national requirements. The strengthened framework for home-host interaction adopted in 2006 under the Capital Requirements Directive (CRD)<sup>15</sup> and the above-mentioned extension of the Lamfalussy framework to the banking sector constitute two milestones in this respect. In the meantime, initiatives to further strengthen the EU supervisory arrangements are already under way (see chapter 7).

Furthermore, the Commission's financial services strategy 2005-10 contains a number of carefully targeted measures to facilitate cross-border activities in the retail banking segment, for instance, with respect to mortgage credit, customer mobility in relation to bank accounts and cross-border access to credit data.

Besides providing input to the work to strengthen the EU framework for cross-border banks, the ECB and the Eurosystem also collect information on developments in banking groups with significant cross-border activities in the EU. In particular, since 2002 the Banking Supervision Committee has conducted a biennial survey of such groups. The three surveys have pointed to a growing internationalisation in recent years, largely as a result of cross-border M&As. While the number of groups included in the analysis has increased only slightly – from 41 to 46 between 2001 and 2006 – the consolidated assets of the sample grew by 54% during this period and its share in the consolidated EU banking assets increased to 68%. The banks with significant cross-border activities thus hold a sizable – and rising – share of total EU banking assets<sup>16</sup>.

14 A special feature entitled “Strengthening the EU framework for cross-border banks” in the 2007 edition of the ECB’s “Financial Integration in Europe” provides an overview of the respective policy initiatives.

15 The CRD implemented the international Basel II landmark agreement on more comprehensive and risk-sensitive capital adequacy requirements for banks at EU level. In this context, it introduced a number of additional elements taking into account the specificities of the EU setting. In particular, considering the advanced state of financial integration in the EU and the correspondingly high degree of systemic linkages and interdependencies between authorities, the CRD introduced strengthened requirements for cooperation between home and host supervisors.

16 Further information on the scope and results of the 2001 and 2003 mapping exercises is provided in the article entitled “International activities of large EU banking groups” in the ECB’s 2005 report on EU banking structures. The 2006 edition of the report lists the main results of the 2005 mapping exercise. The 2005 findings are also assessed in the publication “Review of the Lamfalussy framework: Eurosystem contribution”, which is available on the ECB’s website at: <http://www.ecb.europa.eu/pub/pdf/other/lamfalussy-review2007en.pdf>.

Cross-border banking to evolve as market-led process

Several EU measures to remove policy-related obstacles ...

... actively supported by Eurosystem

**TOWARDS AN INTEGRATED EURO AREA INFRASTRUCTURE FOR RETAIL PAYMENTS**

Cross-border banking has been hampered by the relatively high level of fragmentation of the retail payments infrastructure. Each country has its own national payment instruments and different standards for payments made by credit transfers, direct debits and card payments. For the Eurosystem the establishment of an integrated retail payments market, with a common set of payment instruments for the euro area, is highly desirable, as it is the logical consequence of the introduction of the euro.

**Retail payments market remains fragmented**

During the last ten years, the Eurosystem has acted as a catalyst in the reforms and produced several reports on the causes of, and possible remedies to, the fragmentation and set out the objectives to be achieved. Back in 1999 the Eurosystem highlighted that, especially for cross-border credit transfers, prices were substantially higher and the execution time was substantially longer than for domestic transfers.<sup>17</sup> These inefficiencies were partially linked to the predominant use of correspondent banking and the lack of adequate euro area-wide interbank infrastructures. In 2000<sup>18</sup> the Eurosystem noted that, despite some progress by the banking industry, customer prices had not decreased for cross-border payments. To provide more guidance, the ECB also published a concrete road map for the development of a modern retail payment infrastructure for euro credit transfers.<sup>19</sup>

**Eurosystem has acted as catalyst for reform**

In December 2001 the European Parliament and the Council adopted a Regulation that included an obligation of equal pricing of cross-border and national euro payments for consumers. While the Regulation brought about some improvements from a customer perspective, the banking sector still had considerable work to do in building the pan-European service infrastructure. In early 2002 the banking industry founded the European Payments Council, which consequently formulated a strategy to create the Single Euro Payments Area (SEPA)<sup>20</sup>.

**Industry agreed on creation of SEPA**

Since 2002 the Eurosystem has strongly supported the industry and provided a direction and timelines for implementing a modern payment infrastructure that responds to the needs of euro area customers.<sup>21</sup> The European banking sector has made substantial efforts to increase the efficiency of retail cross-border payments. These have resulted in three main deliverables: a single set of rules for credit transfer, direct debit and card payments for all participants in the euro payments market; equal access for service providers and users throughout Europe; and equal treatment of market participants. In all, transparency on rules and conditions has been clearly enhanced.

**Deliverables and legal framework have been defined**

The Payment Services Directive, adopted at the end of 2007, forms the legal framework for payments in SEPA and is to be implemented by all EU Member States by 1 November 2009. The Directive aims to generate more competition in payment markets by removing market entry barriers. It also provides a simplified and fully harmonised legal framework with regard to information requirements and the rights and obligations linked to the provision and use of payment services.

On 28 January 2008, SEPA was launched with the introduction of a common credit transfer for all euro payments in Europe. Cards were also rolled out for SEPA-wide use. SEPA Direct Debit will be launched in 2009. Thus, ten years after the introduction of the euro, the retail payments

**SEPA launched in January 2008**

17 See the ECB publication of 13 September 1999 entitled "Improving cross-border retail payment services – the Eurosystem's view".

18 See the ECB publication of 14 September 2000 entitled "Improving cross-border retail payment services – Progress report".

19 See the ECB publication of November 2001 entitled "Towards an integrated infrastructure for credit transfers in euro".

20 See the European Payments Council's White Paper "Euroland: Our Single Payment Area!" (May 2002).

21 The Eurosystem has issued several progress reports to guide the industry: 26 June 2003, "Towards a Single Euro Payments Area – progress report"; 2 December 2004, "Towards a Single Euro Payments Area – third progress report"; 17 February 2006, "Towards a Single Euro Payments Area – Objectives and deadlines" (fourth progress report); 20 July 2007 "Single Euro Payments Area (SEPA) – From concept to reality" (fifth progress report). For more information on the impact of SEPA on financial integration, please refer to the 2007 edition of the ECB's "Financial integration in Europe".

infrastructure for the euro is finally being put into place. The national payment instruments are gradually being phased out over the next few years and more innovative solutions will be introduced. In the following years, SEPA is expected to bring further integration and efficiencies in the retail banking market.

#### 6.4 LESSONS AND WAY FORWARD

Financial integration helps  
Eurosystem to achieve its  
objectives

Over the past ten years, considerable progress in financial integration has been achieved in the euro area. More integrated financial markets help the Eurosystem to fulfil its mandate effectively and to achieve its objectives, namely by contributing to the preservation of price stability, financial stability, the smooth operation of payment systems and economic growth. The introduction of the euro has already acted as a major driving force for financial integration. Furthermore, the Eurosystem has made a significant contribution to financial integration over the past decade in four main ways.

Eurosystem action has  
fostered integration process

First, the ECB has developed a conceptual framework for assessing and monitoring the state of financial integration in the euro area and it regularly reviews financial integration in its annual report on financial integration in Europe. In this way, the ECB provides a sound empirical basis for targeted action to foster financial integration, contributes to the respective policy discussion, and raises awareness of financial integration and the respective role of the Eurosystem among the public.

Second, the Eurosystem has successfully acted as a catalyst for market-based initiatives for financial integration in a number of important fields by fostering, for example, a closer integration of short-term debt securities markets (via the STEP project) and of retail banking markets (via SEPA).

Third, the Eurosystem has contributed to the development of various EU measures to reduce policy-related obstacles to financial integration. Such measures have, for example, aimed to foster securities and banking market integration through the establishment of a more comprehensive and coherent EU legislative, regulatory and supervisory framework for financial services and for securities clearing and settlement.

Fourth, the Eurosystem has effectively used the provision of central bank services, primarily aimed at supporting the performance of its central banking tasks, as a channel also to promote financial integration. Key examples of this work have related to the integration of the market infrastructure for large-value payments (TARGET and TARGET2) and the establishment of a common system for the cross-border transfer of collateral (CCBM), both of which have been instrumental in achieving and sustaining the near-perfect integration of money markets.

Future priorities

The Eurosystem will continue using these tools, especially in those areas that are still lagging behind in financial integration, namely the corporate bond, equity and retail banking markets. Priorities in this respect include (i) the provision of advice on possible further enhancements of the EU framework for financial services, namely as regards financial supervision, retail banking and the removal of obstacles to cross-border securities clearing and settlement; (ii) the envisaged establishment of a Eurosystem service (TARGET2-Securities) for the settlement of securities transactions; and (iii) support for the full implementation of SEPA. Finally, the ECB will work to further develop its conceptual framework on financial integration and to extend it over time to include the assessment of progress in financial development.



## 7 FINANCIAL STABILITY AND OVERSIGHT

*Contributing to financial stability is one of the core responsibilities of the Eurosystem for several reasons. Given their role as issuers of money, central banks need to monitor the quality of the financial institutions that are their monetary policy counterparties. Another reason is that a stable financial system is needed for the effective transmission of monetary policy. Furthermore, central banks act as ultimate providers of a safe medium for the settlement of financial transactions and of liquidity in the financial system. Finally, financial stability also supports economic performance. In recent decades the link between economic growth and financial stability has also become increasingly important given the significant expansion of the financial sector relative to the real economy. In particular, severe disruptions in the financial intermediation process are more likely to have macroeconomic repercussions.<sup>1</sup>*

*Over the last ten years the Eurosystem has made an important contribution to safeguarding financial stability in the euro area by pursuing its primary objective of maintaining price stability. The medium-term orientation of the ECB's monetary policy strategy has ensured that price stability could be pursued without introducing unnecessary volatility into economic activity and financial markets. Moreover, the Eurosystem has contributed to financial stability in two main ways: first, the Eurosystem has carried out a number of tasks to foster the stability of the euro area financial system. Second, the Eurosystem has supported the competent national and EU authorities in their tasks relating to financial stability. In addition, the Eurosystem has assumed direct responsibilities for overseeing market infrastructures, notably payment systems, a task which also contributes to financial system stability.*

*This chapter provides an overview of the main achievements of the Eurosystem within these areas. Section 7.1 describes the common background for the respective activities with a brief review of the concept of financial stability and the respective role of the Eurosystem. Section 7.2 assesses the contribution of the Eurosystem to financial stability, while Section 7.3 considers the oversight role of the Eurosystem.*

### 7.1 FINANCIAL STABILITY AND THE ROLE OF THE EUROSYSYEM

To date, there is no shared definition of financial stability. It is particularly difficult to identify with reasonable precision an instance of financial instability apart from an obvious financial crisis. According to the definition used by the ECB, financial stability is a condition in which the financial system – comprising financial intermediaries, markets and market infrastructures – is capable of withstanding shocks and the unravelling of financial imbalances.<sup>2</sup>

Achieving and maintaining financial stability is first and foremost the responsibility of market participants, who are expected to assess and manage their risks effectively and to bear the financial consequences of their transactions. However, market participants do not take into account possible systemic risks that may result from their activities. Therefore, a public framework to prevent and manage potential financial crises is also in place that aims to prevent financial problems from threatening the overall stability of the financial and economic system, while minimising as far as possible distortions in the market mechanism. This framework includes the regular monitoring and

**Financial stability is a complex concept...**

**... and primarily a private-sector responsibility**

<sup>1</sup> Padoa-Schioppa, Tommaso (2002), "Central banks and financial stability: exploring a land in between". Policy panel introductory paper at the Second ECB Central Banking Conference, "The transformation of the European financial system", held on 24 and 25 October 2002.

<sup>2</sup> See the special feature entitled "Assessing Financial Stability: Conceptual Boundaries and Challenges", in the June 2005 ECB Financial Stability Review.

assessment of financial stability, financial regulation and supervision, the oversight of market infrastructures and a number of possible measures for crisis management.

#### Role of the Eurosystem

The Eurosystem carries out two main functions in these areas. First, it conducts certain financial stability tasks at euro area level, like the monitoring and assessment of financial stability in the euro area as well as market operations that aim to address general financial shocks and relieve tensions in the euro area money market. Second, the Eurosystem contributes to the definition of the financial stability policies of the competent national and EU authorities pertaining to financial stability monitoring and assessment, financial regulation and supervision, and crisis management. In addition, the Eurosystem oversees market infrastructures as part of its basic task to promote the smooth operation of payment systems. The following sections assess in detail the Eurosystem's contribution to financial stability and its role in overseeing market infrastructures.

## 7.2 CONTRIBUTION TO FINANCIAL STABILITY

### INSTITUTIONAL SETTING

#### National competence for financial stability ...

The establishment of Economic and Monetary Union (EMU) introduced different institutional set-ups for monetary policy and financial stability within the euro area. While responsibility for the former was transferred from national to supranational level (see Chapter 2), responsibility for the arrangements safeguarding financial stability has remained at national level. Moreover, unlike the situation in several Eurosystem countries, where central banks are responsible for, or closely involved in, prudential supervision,<sup>3</sup> central banking and supervisory functions were separated in EMU as the ECB and the Eurosystem were not given direct supervisory competencies.

#### ... heightens need for cross-border cooperation

This specific institutional framework, inherently more complex than the monetary policy set-up, created a need for close cooperation (i) within the Eurosystem, between the ECB and the NCBs, in order to monitor and address potential area-wide risks to financial stability effectively, and (ii) between the Eurosystem and national supervisors in order to ensure the close coordination of central banking and supervisory functions in safeguarding financial stability.

#### Cooperation mechanisms specified in the Treaty ...

The Treaty on European Union (Maastricht Treaty) provides for specific cooperation mechanisms in this respect. First, the Eurosystem has to “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”.<sup>4</sup> Second, the ECB must be consulted on any proposed Community act or any draft legislative provision of the national authorities that relates to its fields of competence. Similarly, the ECB may offer advice to, and be consulted by, the Council, the Commission and the competent national authorities on the scope and implementation of Community legislation relating to the prudential supervision of credit institutions and the stability of the financial system<sup>5</sup>. Finally, the Treaty foresees the possibility of transferring specific supervisory tasks to the ECB following a simplified procedure without the need to amend the

3 The supervisory structures in EU Member States differ widely in terms of both central banking involvement and the assignment of supervisory responsibility across financial sectors. For instance, while in some countries supervisory responsibilities are divided up by sector, other countries have centralised financial supervision for the banking, insurance and securities sectors within a single authority. A recent overview (2006) of the arrangements in EU countries is provided in the ECB publication entitled “Recent developments in supervisory structures in EU and acceding countries”, which is available on the ECB’s website ([http://www.ecb.europa.eu/pub/pdf/other/report\\_on\\_supervisory\\_structuresen.pdf](http://www.ecb.europa.eu/pub/pdf/other/report_on_supervisory_structuresen.pdf)).

4 Article 105 (5) of the Treaty on European Union.

5 Article 25.1 of the ESCB Statute.

Treaty.<sup>6</sup> This provision, which has not been invoked so far, would be an option should the institutional mechanisms for cooperation fail to achieve a smooth and effective interaction between the authorities.

The Eurosystem carries out its mandate in the field of financial stability with the assistance of the Banking Supervision Committee (BSC), which was established by the ECB's Governing Council in 1998. The BSC comprises high-level representatives of the ECB and the NCBs of the Eurosystem as well as representatives of the national banking supervisory authorities in those Eurosystem countries where the NCB's mandate does not include banking supervision. In addition, the BSC includes the central bank and supervisory representatives of those EU countries that have not adopted the single currency. This wide scope of membership reflects the fact that the national responsibilities for financial stability and supervision are fulfilled in accordance with the harmonised regulatory framework and the Single Market of the European Union.<sup>7</sup>

## MARKET ENVIRONMENT

The role and tasks of the ECB and the Eurosystem in financial stability have evolved against the background of the overall progress in cross-border financial integration (as discussed in Chapter 6) and the increasingly dynamic character and growing complexity of the financial system.

Financial integration enhances the possibilities for risk-sharing and diversification, and increases the liquidity and depth of financial markets, thus contributing to the resilience of the financial system. However, it also renders the financial system more prone to disturbances that may be cross-border in origin or nature. This calls for a continuous strengthening of cross-border information-sharing and cooperation among central banks and supervisory authorities, namely with respect to the growing number of large multinational EU banking groups.

Furthermore, the rapid pace of financial innovation, coupled with the deepening of financial integration, has blurred the boundaries between financial intermediaries, markets and market infrastructures as well as between the various financial market segments. Important developments in this respect include the greater participation of banks in capital markets (e.g. through the securitisation of bank loans, credit risk transfer instruments and complex structured finance products), the growing role of financial conglomerates, the increasing role of commercial banks in providing infrastructure services and the rising participation of non-regulated entities in financial markets and infrastructures.

As a result, there is a constant need to develop and update the framework for monitoring, analysing and responding to potential risks in the financial system, taking into account the various interlinkages between its components and the corresponding changes. This task is becoming increasingly demanding.

... performed with support  
of the BSC

Financial integration calls  
for closer cross-border  
cooperation

Dynamic and complex  
financial system ...

... makes safeguarding  
financial stability more  
demanding

<sup>6</sup> Article 105 (6) of the Treaty and Article 25.2 of the ESCB Statute.

<sup>7</sup> For more information on the BSC, see Papademos, Lucas (2007), "The Banking Supervision Committee of the ESCB and its contribution to financial stability in the EU", in: Kreditwesen, Vol. 8, pp.28-31.

## MAIN ACHIEVEMENTS OF THE EUROSYSTEM

### FINANCIAL STABILITY MONITORING AND ASSESSMENT

Forward-looking perspective  
on financial stability

The ECB considers that safeguarding financial stability has an important forward-looking dimension: potential sources of financial risks or vulnerabilities – such as inefficiencies in the allocation of financial resources and the mispricing or mismanagement of financial risks – should be identified, as far as possible, before they lead to unsustainable and potentially damaging imbalances within the financial system. At the same time, it is useful to attempt to assess the extent of such financial weaknesses and their potential effects on the overall stability of the financial system. In particular, this helps to enhance the focus of actions of the private and public sectors on those risks that are more likely to impair financial stability.

Therefore, the Eurosystem regularly monitors and assesses possible sources of risks and vulnerabilities in the financial system in order to recognise emerging imbalances at an early stage and to provide a basis for targeted remedial action, such as intensified financial supervision or market surveillance.

All financial system  
components are considered

In this context, the Eurosystem pays close attention to the resilience of the banking sector, which has a crucial role in the conduct and transmission of monetary policy, in the payment system, and in channelling funds from savers to investors. At the same time, this analysis is complemented by a broader assessment, taking into account the other components of the financial system, such as markets, non-bank financial intermediaries and infrastructures, given the increasing role of these components within the system and their close linkages with banks. Moreover, the Eurosystem attaches great importance to close cooperation with the supervisory authorities in the monitoring of financial stability in order to combine macro- and micro-prudential insights. The role of the BSC in providing a forum for sharing central banking and supervisory expertise is crucial in this respect.

Macro and micro-prudential  
insights are combined

Activities of the Eurosystem  
have three pillars:

The activities of the Eurosystem in the monitoring and assessment of financial stability are based on three pillars.

Semi-annual review of  
financial stability  
in euro area ...

First, in 2000 the ECB launched the development of a comprehensive framework for assessing potential risks and vulnerabilities in the euro area financial system as a whole. This assessment aims to determine the individual and collective robustness of the euro area institutions, markets and infrastructures; to identify the main sources of risk and vulnerability that could pose problems for the future stability of the financial system; and to appraise the ability of the financial system to cope, should these risks materialise. Since December 2004, the results of this systematic assessment have been presented in the semi-annual “Financial Stability Review” (FSR), which benefits from input from the BSC. Like the publications of the same kind issued by other central banks worldwide, the main purpose of the FSR is to promote awareness in the financial industry and among the public of developments that are relevant to the stability of the euro area financial system. Furthermore, by providing an overview of sources of risk and vulnerability that could potentially affect financial stability, the report also aims to play a role in easing financial tensions or preventing them in the first place.

... annual macro-prudential  
and structural analysis of EU  
banking sector ...

Second, since 1999 the BSC has performed regular macro-prudential analyses of the EU banking sector, the findings of which have been published in an annual report entitled “EU banking sector stability” since 2003. Furthermore, the BSC regularly reviews structural developments in the EU banking sector that are relevant to central banks and supervisory authorities. The annual report

entitled “EU banking structures”, first published in 2002, is the result of this work. The BSC’s macro-prudential and structural analyses are based on a combination of aggregate statistical information obtained from central banks and supervisory authorities in the EU, complemented by qualitative and, as far as possible, forward-looking information from the BSC’s members.

Third, the ECB and the Eurosystem, together with other EU central banks, are also closely involved in, and contribute to, the work of other institutions and bodies that monitor financial stability in Europe and worldwide. At EU level, this relates in particular to supporting the Economic and Financial Committee (EFC), which has reviewed financial stability issues semi-annually in its Financial Stability Table (FST) format since 2003 and is responsible for preparing the ECOFIN Council’s discussions on those matters.<sup>8</sup> At global level, the ECB and the Eurosystem’s NCBs, again together with other EU central banks, actively participate in the monitoring activity of the International Monetary Fund, the Financial Stability Forum, the Committee on the Global Financial System, and the Bank for International Settlements.

Notwithstanding these substantial achievements, the Eurosystem’s framework for monitoring and assessing financial stability requires further improvements. An important challenge in this regard – not only for the Eurosystem but also for central banks and supervisory authorities worldwide – relates to the development of enhanced quantitative approaches to identifying financial stability risks and to assessing the potential impact of the materialisation of these risks. This is a difficult task because quantifying the financial stability objective is not straightforward, and an adequate analytical framework, involving appropriate indicators, models and methodologies, is inherently extremely complex. Moreover, the continuous and rapid transformation of the financial system together with financial innovation present additional challenges to the development of an appropriate analytical framework. In particular, the complexity of some of the new financial instruments, the cross-sectoral redistribution of risks and the opaqueness of the transactions of a growing number of non-bank financial institutions have rendered the modelling of the financial system as well as the monitoring and assessment of risks much more difficult.<sup>9</sup> Although these assessment challenges are formidable, it is important to acknowledge that significant progress has been made in recent years.

The semi-annual FSR has gradually gained in analytical depth, particularly regarding the analysis of financial markets and institutions. Examples include methods of quantifying the exposures of large and complex banking groups to corporate sector credit risk, the development of various indicators of other risks faced by banks, hedge funds and insurance companies, as well as indicators of financial market activities that aim to depict potential financial imbalances. Another important element of this endeavour is the development of methodologies for conducting macro stress-tests of the euro area financial system. The main objective of such tests is to assess the potential effects of extreme events or sizeable shocks on the financial system in terms of economic cost. Ultimately, such a framework for stress-testing would help to quantify and prioritise risks by their importance and would allow the monitoring and assessment of financial stability to be more focused. Furthermore, once fully implemented, macro stress-tests could help the Eurosystem to improve the internal consistency, and thereby the forward-looking dimension, of its financial stability monitoring. Over the past few years, the ECB has worked closely with the BSC to identify methods to enhance, in particular, the cross-border dimension of stress-testing, an aspect that gains in relevance as the

... contribution to EU and global financial stability monitoring

Quantitative challenges of assessing financial stability ...

... require steady improvements in Eurosystem’s approaches

<sup>8</sup> Whereas the EFC comprises within its normal composition representatives of EU finance ministries, national central banks, the ECB and the Commission, in its FST format it is extended to include the Chairs of the BSC and of the EU supervisory committees, the latter established under the Lamfalussy approach (see the following section on financial regulation and supervision).

<sup>9</sup> See the special feature entitled “Measurement challenges in assessing financial stability” in the December 2005 ECB Financial Stability Review.

euro area becomes increasingly financially integrated and the cross-border activities of financial institutions grow in importance.<sup>10</sup>

**Need to enhance availability and quality of information**

Another important challenge has been the development of an adequate information infrastructure to support the monitoring and assessment of financial stability and, especially, the enhancement of the information exchange through the BSC and the Statistics Committee, including an annual collection of consolidated banking data for the entire EU banking system. The limited availability and quality of data have been identified as major obstacles to the further development of quantitative frameworks for the assessment of financial stability. It is therefore very important to extend the set of available high-quality data.

**Objective to ensure overall safety and soundness of financial institutions**

## **FINANCIAL REGULATION AND SUPERVISION**

On the assumption that private sector action may fail to prevent the emergence of financial imbalances, the EU regulatory and supervisory framework aims to promote the overall safety and soundness of financial institutions. Prudential requirements relating to capital buffers, best risk management practices and public disclosure provide the main tools in this respect.

**ECB/Eurosystem advice and input ...**

The Eurosystem is closely involved in this work as its macro-prudential and structural analysis of the financial system and the micro-prudential assessment of supervisors are mutually reinforcing. Accordingly, the ECB and the Eurosystem provide advice on, and contribute to, the development of the EU regulatory and supervisory framework. The ECB also plays an advisory role with respect to proposed legislative changes to financial regulation and supervision at national level.

**... on EU regulatory framework for financial services**

In recent years, the ECB and the Eurosystem have provided important contributions regarding the enhancement of the EU regulatory framework for financial services. One such contribution related to the 1999 Financial Services Action Plan (FSAP), which established a modernised and more comprehensive EU regulatory framework for financial services (see Chapter 6). The ECB gave input on the development of the FSAP in the form of formal opinions on the Commission's various legislative proposals and participation in technical committees. Following up on this work, the Eurosystem contributed to the formulation of the EU financial services policy strategy for the years 2005-10, which was published as a Commission White Paper in December 2005.<sup>11</sup> The ECB and the Eurosystem continue to provide their input and expertise during the implementation of the White Paper.<sup>12</sup>

**... and on EU setting for financial regulation and supervision**

The Eurosystem has also been actively involved in the ongoing development of the EU institutional setting for financial regulation and supervision. In particular, it has been a strong supporter of the "Lamfalussy framework" for financial regulation and supervision, which aims to make the EU's legislative decision-making process more efficient and flexible, and to establish a more coherent regulatory and supervisory framework across Member States (see Chapter 6). The ECB also plays an active role in the functioning of the Lamfalussy framework as an observer on the Level 2 committees in the banking and securities sectors, and as a member of the Level 3 committee in the

10 See Fell, John (2007), "Challenges for EU-wide macro stress-testing", presentation given at the ECB conference on stress-testing and financial crisis simulation exercises held on 12-13 July 2007, which is available on the ECB's website at: <http://www.ecb.europa.eu/events/pdf/conferences/sfi/Fell.pdf>

11 See the publication "European Commission's Green Paper on Financial Services Policy (2005-2010). Eurosystem contribution to the public consultation" of 1 August 2005, which is available on the ECB's website at: <http://www.ecb.europa.eu/pub/pdf/other/ecgreenpaperfinancialservicespolicy2005en.pdf>

12 For example, the Eurosystem responded to the Commission's consultations on possible action regarding investment funds and mortgage credit.

banking sector. Finally, the Eurosystem has contributed to the continuous monitoring of the functioning of the Lamfalussy framework.<sup>13</sup>

A first full review of the Lamfalussy approach across financial sectors was conducted by ECOFIN in December 2007. Various EU committees and fora, as well as the Eurosystem, have provided input in this assessment. The review emphasised that the Lamfalussy framework has fostered significant progress in terms of the efficiency and transparency of the EU legislative process and in achieving a more consistent regulatory and supervisory framework. However, supervisory outcomes still need to become more congruent across Member States. Therefore, it is deemed necessary to enhance the functioning of the Lamfalussy approach by (i) giving national supervisors a European mandate; (ii) reducing national options and discretions in EU rules and achieving closer convergence of financial reporting requirements; (iii) strengthening the role of the Lamfalussy Level 3 committees in pursuing supervisory convergence and cooperation, and enhancing the role of colleges of supervisors in the supervision of cross-border groups.<sup>14</sup> ECOFIN will decide on practical measures to implement these priorities at its meeting in June 2008.

## FINANCIAL CRISIS MANAGEMENT

Despite the substantial improvements in cross-border financial crisis prevention, the emergence of financial disturbances with potential cross-border financial stability implications cannot be excluded. A private-sector solution to resolve the respective financial difficulties is again the main line of recourse. Should private action prove insufficient to contain the crisis, complementary public measures may also be considered. However, such possible involvement is at the discretion of the public sector and based on the concept of “constructive ambiguity” in order to counter the risk of moral hazard.

The allocation of crisis management responsibilities among the Eurosystem, national central banks, supervisory authorities and finance ministries depends on whether the crisis is one of liquidity or solvency.

During a general liquidity crisis, the ECB may contribute through its liquidity operations (see Chapter 3) to an orderly functioning of the money market, based on operational procedures agreed at Eurosystem level. Furthermore, the NCBs may provide – temporarily and against adequate collateral – emergency liquidity assistance (ELA) to illiquid but solvent credit institutions. The possible provision of ELA is undertaken at the discretion of the competent NCB, subject to the conditions set out in the Treaty relating to the prohibition of monetary financing, and only in exceptional circumstances. NCBs may consider such assistance justified particularly on the grounds of preventing or mitigating potential systemic effects as a result of contagion through other financial institutions or market infrastructures. In 1999, the Eurosystem agreed on specific procedures for information-sharing when ELA is granted by a Eurosystem NCB. These procedures aim to ensure that

Private sector as first line  
of defence

Role of the Eurosystem ...

... during liquidity crises...

13 An important element of this contribution related to the Commission’s 2005 review of the functioning of the Lamfalussy framework in respect of securities markets legislation, see the document “Review of the application of the Lamfalussy framework to EU securities markets legislation. Contribution to the Commission’s Public Consultation” of 17 February 2005, which is available on the ECB’s website at: <http://www.ecb.europa.eu/pub/pdf/other/lamfalussy-reviewen.pdf>. The Eurosystem was also involved in the preparation of the Financial Services Committee’s Report on Financial Supervision, finalised in February 2006 and endorsed by ECOFIN in May 2006. Most recently, the Eurosystem contributed to the first full review of the Lamfalussy framework across financial sectors. See the document “Review of the Lamfalussy framework. Eurosystem contribution” of 30 November 2007, which is available on the ECB’s website at: <http://www.ecb.europa.eu/pub/pdf/other/lamfalussy-review2007en.pdf>.

14 These priorities were also highlighted in the previously mentioned contribution by the Eurosystem to the Lamfalussy review. See the article “Developments in the EU arrangements for financial stability” in the ECB’s Monthly Bulletin of April 2008 for further information.

the impact of an intervention of this type by an NCB – which carries the related costs and risks – can be managed in a way consistent with maintaining an appropriate single monetary policy stance.

**... and solvency crises**

During a solvency crisis, the main responsibility for crisis management and resolution is borne by the finance ministries that decide on the possible provision of financial support, and by the supervisory authorities that may take exceptional supervisory measures to stabilise the troubled institution or decide to wind it down.

Regardless of whether a financial crisis is a liquidity or solvency crisis, the Eurosystem may support the crisis management efforts by drawing on its analytical expertise and knowledge gathered in monitoring financial stability and assessing potential channels for the propagation of financial disturbances within the financial system and the potential implications for its stability. Furthermore, should a liquidity or solvency crisis impact on the operation of market infrastructures, the Eurosystem may take action to ensure that these infrastructures continue to function smoothly.

**Effective interplay among authorities is crucial**

Given the need for very timely and well-targeted action during a financial crisis, a smooth and effective interplay among all the competent authorities – central banks, supervisory authorities and finance ministries – is crucial. This presents a substantial challenge in the EU context given the large number of authorities involved. Furthermore, while a clear definition of responsibilities and a structure to facilitate information-sharing and cooperation are required, no universal blueprint for crisis management can be designed, as every financial crisis is unique. Flexibility and discretion are also essential in order to guard against the risk of moral hazard.

**EU crisis management has been strengthened ...**

However, much has been done during the past decade to strengthen the EU arrangements for crisis management. The Eurosystem has actively contributed to three main areas of action in this respect relating to: (i) the clarification of the legislative framework for crisis management, namely the 2006 Capital Requirements Directive (CRD) and the 2002 Financial Conglomerates Directive; (ii) the development and continuous enhancement of arrangements for voluntary cooperation among authorities in the form of Memoranda of Understanding (MoU) at EU level; and (iii) crisis simulation exercises at both EU and Eurosystem level to reinforce existing legislative and informal arrangements and to enhance the overall level of preparedness in addressing crises.<sup>15</sup>

**... and further initiatives are under way**

An important step in the further enhancement of EU arrangements for crisis management was reached in October 2007, when ECOFIN set out a strategic roadmap for the EU financial stability arrangements.<sup>16</sup> The main elements of this roadmap are (i) the endorsement of a set of common principles for cross-border crisis management as well as of a common analytical framework for assessing financial crises developed by the BSC and the Committee of European Banking Supervisors (CEBS); formally, this was achieved by the signing of a new MoU by EU finance ministers, central bank governors and banking supervisors in April 2008; (ii) the additional reinforcement of this framework through specific cooperation arrangements regarding cross-border institutions between the authorities concerned; (iii) an invitation to the Commission to assess, in

<sup>15</sup> The article “The EU arrangements for financial crisis management” in the ECB’s Monthly Bulletin of February 2007 provides an overview of these three strands of work.

<sup>16</sup> This roadmap was based on the recommendations of the EFC ad hoc working group on EU financial stability arrangements – composed of high-level representatives from finance ministries, NCBs, supervisory authorities, the ECB and the Commission – established in September 2006 to consider the possible scope for clarifying and enhancing the existing arrangements for resolving cross-border financial crises in the EU, taking into particular account the lessons learned from the EU-wide crisis simulation exercise organised in April 2006. For more detailed information on ECOFIN’s roadmap and the respective follow-up measures, see the article “Developments in the EU arrangements for financial stability” in the ECB’s Monthly Bulletin of April 2008.

Table I Main contributions of the Eurosystem in the field of financial stability

Area	Level	Main activities of the Eurosystem
<b>Monitoring and assessment of financial stability</b>		
Assessment of euro area financial system	Euro area	Semi-annual ECB “Financial Stability Review”
Macro-prudential analysis of EU banking sector	EU	Annual ECB report entitled “EU banking sector stability”
Structural analysis of EU banking sector	EU	Annual ECB report entitled “EU banking structures”
EU financial stability monitoring	EU	Contribution to discussions of EFC-FST and ECOFIN
Macro stress-testing	EU/euro area	Contribution to developing area-wide macro stress-testing
<b>Financial regulation and supervision</b>		
Overall EU strategy for financial services	EU	Contribution to public policy debate (e.g. regarding EU financial services policy strategy 2005-10)
Specific legislative initiatives	EU	Formal ECB opinions and technical input (via the Lamfalussy Level 2 committees in the securities and banking sectors)
Consistent implementation of EU rules	EU	Contribution to development of common supervisory standards and practices in banking sector (via the Lamfalussy Level 3 committee, the CEBS)
Enhancement of EU supervisory framework	EU	Contribution to public policy debate (e.g. 2007 review of Lamfalussy framework)
<b>Financial crisis management</b>		
Enhancement of EU legislative framework	EU	Formal ECB opinions and technical input (via Lamfalussy ‘level 2’ committees)
Emergency liquidity assistance (ELA)	Euro area	Assessment by Eurosystem of compatibility of relevant ELA operations to be undertaken by NCBs with prevailing monetary policy stance
Systemic assessment of a financial crisis	EU	BSC-CEBS common analytical framework
Cooperation among EU central banks, finance ministries and supervisory authorities	EU	Contribution to development of Memoranda of Understanding agreed in 2003, 2005 and 2008 Active participation in development of overall strategy for enhancing EU financial stability arrangements (e.g. with respect to ECOFIN’s 2007 roadmap) Involvement in design and conduct of EU crisis simulation exercises
Preparedness of Eurosystem for financial crises	Euro area	Eurosystem financial crisis simulation exercises

close cooperation with the Member States, possible further clarifications of the home-host arrangements for crisis management within the CRD and to submit proposals in this respect by the end of 2008; and (iv) a request to the Commission to assess possible regulatory enhancements as regards the transfer of assets within banking groups, the EU Winding-Up Directive, and the role of deposit guarantee schemes and public sector support in crises.

## LESSONS AND WAY FORWARD

A large number of measures to strengthen the arrangements for financial stability in the euro area and the EU have been taken during the past ten years. The Eurosystem has played a major role in this regard. First, the Eurosystem has pursued various actions at euro area level to foster and safeguard the stability of the euro area financial system, relating especially to the monitoring and assessment of financial stability and to market operations that aim to address general financial shocks and relieve tensions in the euro area money market. Second, the Eurosystem has supported national and EU authorities in their policies relating to the monitoring and assessment of financial stability, financial regulation and supervision, and crisis management. Despite the substantial achievements, the EU framework for financial stability is still evolving and requires further improvements to keep pace with progress in financial integration and innovation.

Significant achievements  
of Eurosystem

First, as regards the monitoring and assessment of financial stability, it will be important to further improve our understanding of the complex and rapidly changing financial system and to contribute actively to the development of enhanced quantitative approaches. These will include the development of measures for a more comprehensive analysis of inter-relationships across economic and financial sectors and further advances in macro-stress testing.

Second, the Eurosystem will need to continue to play a very active role in providing high-quality advice on the ongoing development of the EU arrangements for financial regulation and supervision. Ensuring the effective and efficient functioning of the Lamfalussy framework will be a key issue, both with a view to exploiting the full potential of the enhanced EU regulatory framework put in place with the FSAP and to ensuring that the EU supervisory arrangements keep pace with the activities of financial groups with significant cross-border activities, which are increasingly prominent in the Single Market, and with their requirements for a streamlined and consistent supervisory interface.

Third, the momentum for enhancing the EU arrangements for crisis management should be maintained. The 2008 Memorandum of Understanding signed by EU finance ministries, central banks, and supervisory authorities has been a major achievement in this respect. Efforts will be needed to implement and test this agreement effectively so as to render it as operational as possible. For its part, the Eurosystem will continue testing and, if need be, improving its own financial crisis arrangements.

Finally, the Eurosystem should contribute to reinforcing further the cooperation between central banks and supervisory authorities in the EU, particularly with respect to the major cross-border financial groups. Intensified information-sharing on major developments in the activities and the risk profile of such groups is required both on an ongoing basis and in terms of the management of stress situations.

### 7.3 OVERSIGHT OF MARKET INFRASTRUCTURES

Financial market infrastructures facilitate the flow of funds, securities and other financial instruments among economic agents, and thus constitute a key component of the financial system as a whole. Market infrastructures encompass the various payments and securities trading, clearing and settlement systems, the set of arrangements, institutions, rules and procedures governing them, as well as the payment instruments they process. Owing to their extensive role and network characteristics, payments and securities infrastructures are often described as the “vascular system” of the financial system. The major stakeholders affected by market infrastructures include system operators, participants (financial institutions), service providers, central banks, regulatory bodies and, ultimately, all economic agents as end-users of payment and settlement services.

In parallel with the increasing complexity of the financial market infrastructures, as well as with the rapidly growing values and volumes of financial transactions handled by them, the importance of the smooth functioning of these infrastructures in the maintenance of financial stability has been recognised by central banks for a long time. Obviously, the system owners and operators have the primary responsibility of ensuring the reliable functioning of the market infrastructures and of providing safe and efficient payment and settlement services. However, considering its responsibilities in monetary policy and financial stability, its role in providing settlement accounts for payment system participants and its interest in preserving public confidence in the payment

instruments used, the Eurosystem, like central banks in general, has developed market infrastructure oversight as one of its basic functions. The ultimate policy objective of oversight is to promote the smooth functioning of the financial market infrastructures with the aim of forestalling any spillover of disturbances in these infrastructures into the financial system and the economy as a whole. The main oversight activities include the development of oversight standards, the continuous monitoring of the performance of the market infrastructures and the regular assessment of their compliance with the standards based on a defined methodology.

### ROLE OF THE ECB AND EUROSISTEM

The Treaty and the Statute recognise oversight as one of the basic tasks of the Eurosystem. Article 105 (2) of the Treaty and Article 3 of the Statute state that “The basic tasks to be carried out through the ESCB shall be [...] to promote the smooth operation of payment systems.” In addition, Article 22 of the Statute states that “The ECB and national central banks may provide facilities, and the ECB may make regulations, to ensure efficient and sound clearing and payment systems within the Community and with other countries”.

The oversight role of the Eurosystem covers payment and settlement systems – both large-value and retail payment systems – that process the euro. In order to ensure a level playing-field, the same minimum standards are applied to the systems managed by the Eurosystem (e.g. TARGET2) as those applied to privately operated payment systems.

In accordance with their relevance to financial stability, the oversight function originally focused mainly on large-value euro payment systems. Nevertheless, the overseers have been gradually extending their activities to retail payment systems, payment instruments and third-party service providers.

### PAYMENT SYSTEMS, INSTRUMENTS AND INFRASTRUCTURE SERVICE PROVIDERS

In accordance with the common oversight framework, the NCBs are responsible for the implementation of the ECB oversight policy in relation to payment systems legally incorporated in their jurisdiction. Moreover, the Governing Council can decide to assign the ECB oversight responsibilities for systems that have special characteristics.

Against this background, the ECB has been responsible for the oversight of the ECB Payment Mechanism (EPM) as the TARGET component operated by the ECB.<sup>17</sup> The integrated structure of TARGET2 as a new platform gradually replacing TARGET over the period 2007-2008 has made it necessary to modify the structure of its oversight framework. The Governing Council is the ultimate overseer of the system, assisted by the Payment and Settlement System Committee. All TARGET2 oversight activities are led and coordinated by the ECB oversight function with the close involvement of the national central banks of the euro area.

In addition, the ECB performs oversight activities for the three systems operated by the EBA Clearing Company of the Euro Banking Association (EBA CLEARING): EURO1 for large-value payments, STEP1 for individual low-value customer payments and STEP2, a new platform providing batch processing services for cross-border retail payments.

<sup>17</sup> In accordance with the principles agreed at Eurosystem level, the ECB has established separate organisational structures for the operation function and the oversight function in order to avoid any possible conflict of interest.

Oversight as core central bank function: role and scope

ECB as lead overseer

**Cooperative oversight for CLS**

There are payment systems processing euro-denominated transactions located outside the euro area (so-called offshore systems). Among them, the most important one is the CLS system, in which the ECB – applying the rules of cooperative oversight<sup>18</sup> in close cooperation with the Federal Reserve System as primary overseer – plays the role of overseer in respect of settlements in euro.

**Retail payment systems and instruments**

According to the common oversight framework of the Eurosystem, the oversight of retail payment systems is performed mainly at NCB level. Nevertheless, in order to apply a harmonised approach, the Eurosystem defined its policy stance on the oversight of retail payment systems and performed a detailed oversight assessment of these systems in 2005.

As regards the oversight of payment instruments, in 2007 the Eurosystem established an oversight framework for card payment schemes that process euro payments. After a market consultation, the framework was published in January 2008.

**Risk-based oversight framework for SWIFT**

The operation of the financial market infrastructure is supported by a number of third-party service providers. Among them, SWIFT, the global provider of secure financial messaging services for the financial industry, is by far the most important player and, although not a payment system in itself, calls for special attention from overseers. In accordance with the agreement of the G10 central banks, SWIFT has been subject to cooperative oversight since the end of 1997 with the Nationale Bank van België/Banque Nationale de Belgique acting as lead overseer. In the context of its participation in the cooperative framework of SWIFT, the ECB has helped to develop a set of high-level oversight expectations suitable for the assessment of SWIFT. This initiative was finalised in June 2007 and integrated into the risk-based oversight framework applied to SWIFT.

## **SECURITIES CLEARING AND SETTLEMENT SYSTEMS**

**Strong interest in securities settlement**

Securities settlement systems (SSSs) and central counterparty clearing systems (CCPs) are closely intertwined with payment systems,<sup>19</sup> hence their secure functioning has clear implications for financial stability. Furthermore, the SSSs are interrelated with monetary policy through their role in providing settlement services for collateral eligible in Eurosystem credit operations. To this end, although no common oversight framework has been applied by the Eurosystem for SSSs, central banks have a strong interest in the smooth functioning of SSSs in the euro area.

**Assessments from user perspective**

In 1998 the Eurosystem adopted a set of standards to assess the eligibility of SSSs in providing settlement services in Eurosystem credit operations from the user perspective (so-called “user standards”). Regular assessments of the SSSs, including the links between them on their compliance with the user standards, are performed in order to ensure the same level of safety for credit operations throughout the euro area. The positive result of these assessments is a precondition for those SSSs and links to become eligible for use in the collateralisation of Eurosystem credit operations.

<sup>18</sup> As set out in the “Report of the Committee on Interbank Netting Schemes of the Central Banks of the Group of Ten Countries” in 1990 (the so-called Lamfalussy Report) and updated in the CPSS report “Central Bank Oversight of Payment and Settlement Systems” (May 2005).

<sup>19</sup> The settlement of securities transactions involve two legs, a cash leg and a securities leg. The settlement of the cash leg of the securities transactions takes place mostly in central bank RTGS systems, in parallel with the settlement in a central securities depository of the security leg, based on the delivery-versus-payment method.

## COOPERATION WITH OTHER AUTHORITIES

As a contribution to fulfilling its oversight objectives, the Eurosystem has built up and maintained ties with the other authorities that are responsible for market infrastructure-related issues.

To this end, the framework for cooperation between EU central bank overseers and banking supervisors is defined in Memoranda of Understanding addressing cooperation and exchanges of information in three different sets of circumstances: (i) the establishment of a payment system and applications for access to such system; (ii) ongoing activities; and (iii) crisis situations.

Moreover, a framework for cooperation on securities clearing and settlement systems between the ESCB and the Committee of European Securities Regulators (CESR) was set up in 2001. An ESCB-CESR working group started to work on the adaptation to the EU environment of the so-called CPSS-IOSCO recommendations for SSSs and CCPs.<sup>20</sup> Although the ESCB-CESR has made substantial progress in this field, there are still some issues to be addressed in order to complete the preparation of the oversight standards envisaged for SSSs and CCPs in the EU.

## POLICY DEVELOPMENTS AND MAIN ACTIVITIES

The oversight policies and objectives of the Eurosystem have been laid down in a number of published documents, high-level standards and in policy statements on specific topics approved by the Governing Council. The oversight function performs regular assessments on the compliance of the market infrastructures with the standards applicable. The stepping stones of the policy developments, as well as the main activities performed in this area during the past decade, are highlighted in Table 2 in chronological order.

<sup>20</sup> CPSS stands for the G10 Committee on Payment and Settlement Systems. IOSCO stands for the International Organization of Securities Commissions. The reports on Recommendations for SSSs and for CCPs are available on the BIS website.

**Table 2 Main achievements of ECB/Eurosystem oversight function**

### Policy developments

In August 1998 the ECB published the “Report on electronic money”, building on the analysis conducted under the aegis of the EMI. The report addresses the reasons why the issuance of electronic money should be regulated and states the minimum requirements for electronic money issuers and desirable objectives.

In November 1998 the Eurosystem outlined its policy principles in relation to the development of payment and securities clearing and settlement infrastructures providing services for euro-denominated transactions from outside the euro area.

In its statement of June 2000 the Governing Council of the ECB clarified the role of the Eurosystem in the field of payment systems oversight and explained its objectives and principles<sup>1</sup>.

In February 2001 the Governing Council of the ECB adopted the Core Principles for Systemically Important Payment Systems<sup>2</sup> (Core Principles) as the set of minimum standards that the Eurosystem uses for its common oversight policy on payment systems. These principles give guidance for the design and operation of the respective payment systems by defining general requirements for the key features of these infrastructures, including a sound legal basis, adequate management of financial risks, security and operational reliability, efficiency and governance arrangements. The Core Principles apply to systemically important payment systems<sup>3</sup> of all types.

In September 2001 the ECB released a document entitled “The Eurosystem’s policy line with regard to consolidation in central counterparty clearing”, presenting the policy stance on the possible implications of the consolidation process in central counterparty clearing.

<sup>1</sup> “Role of the Eurosystem in the field of payment systems oversight” published on the website of the ECB.

<sup>2</sup> CPSS report “Core Principles for Systemically Important Payment Systems” published on the BIS website.

<sup>3</sup> A payment system is considered to be systemically important if disruptions within it could trigger or transmit further disruptions to the wider financial system. The Eurosystem takes the view that every large-value payment system operating in euro is systemically important.

Frameworks for cooperation

Transparency of policies and activities

**Table 2 Main achievements of ECB/Eurosystem oversight function (cont'd)**

In May 2003 the “Electronic money system security objectives” (EMSSO) report was published. It presents the expectations of the Eurosystem with regard to the technical security of e-money schemes. The report contains a general description of e-money schemes, a comprehensive risk/threat analysis and a list of security objectives that should be met by e-money schemes in order to cover these risks/threats.

In June 2003 an oversight framework for retail payment systems operating in euro was adopted. This framework is intended to ensure that retail payment systems cannot become vectors of systemic risks or economic malfunctioning in the euro area. The framework contained criteria for classifying retail payment systems in line with their systemic relevance.

The “Business continuity oversight expectations for systemically important payment systems” (BCOE for SIPS) report was published in May 2006. As a response to the new types of threat that have emerged in recent years, the basic aim of the report was to establish a harmonised oversight framework for business continuity in the euro area. The BCOE for SIPS provides guidance to SIPS operators in order to achieve sufficient and consistent levels of resilience, focusing on business continuity strategy, planning and testing, as well as crisis management.

In July 2007 the ECB published the “Eurosystem policy principles on the location and operation of infrastructures settling euro-denominated payment transactions”. These principles apply to any existing or potential payments infrastructure located outside the euro area that settles euro transactions. They also specify the position of the Eurosystem in this field, which aims to retain, in any event, ultimate control over its currency.

In January 2008 the Governing Council of the ECB approved the report entitled “Oversight framework for card payment schemes – Standards”, which lays down common oversight standards with regard to card payment schemes operating in the euro area. These standards focus on ensuring the safety and efficiency of the card payment schemes.

#### **Assessment of key payment infrastructures**

In 2001, at the request of the ECB, the IMF prepared Reports on the Observance of Standards and Codes (ROSCs) for the euro area in the context of its Financial Sector Assessment Program (FSAP). In the field of payment systems the assessment covered TARGET and the EURO1 system.<sup>4</sup>

Prior to the start of CLS system in 2002, the ECB, together with other central banks of currencies eligible for CLS settlement, performed a joint risk assessment of the system. In view of the positive results of the assessment, the ECB approved the inclusion of the euro in CLS.

In the course of 2003, 19 euro large-value payment systems, including all TARGET components, have been assessed against the Core Principles. The results of this assessment were published on the ECB’s website in 2004.<sup>5</sup>

In early 2005 the TARGET overseers carried out an oversight assessment of SORBNET-EURO, Narodowy Bank Polski’s euro RTGS system, in view of its intention to connect to TARGET via the BIREL system operated by the Banca d’Italia.

In August 2005 the result of a detailed oversight assessment of 15 euro retail payment systems against the applicable Core Principles was outlined on the ECB’s website.

In 2006 an in-depth oversight assessment was performed on the impact of connecting Eesti Pank’s euro RTGS system to TARGET via the BIREL system.

Prior to its implementation in November 2007, the design of TARGET2 was subject to a comprehensive oversight assessment against the Core Principles. The final version of the detailed assessment report on TARGET2 is intended to be published in the course of 2009.

#### **Other main activities**

In cooperation with the NCBs, a comprehensive description of the various payment and securities settlement systems operating in the EU countries has been prepared regularly and made available in the ECB publication “Payment systems in the European Union” (known as the “Blue Book”), together with the Addendum to the Blue Book containing detailed statistical data on the systems. The last (fourth) edition of the Blue Book was published in 2007.

The oversight function has been closely monitoring the developments under way in the correspondent banking business. Regular surveys are performed (most recently in 2005) among a sample of banks to assess the characteristics of this particular area of payment arrangements from a systemic risk perspective. Owing to the confidential nature of the data provided by the banks, the results of the surveys can only be accessed by the participants.

In 2007 the former assessment methodology was renewed and a common methodology developed for the oversight of systemically and prominently important euro payment systems. Following a public consultation carried out in the second half of the year, the final version of the new methodology was made available on the ECB’s website in November 2007.

4) Published on the IMF’s website in October 2001.

5) See the report entitled “Assessment of euro large-value payment systems against the Core Principles”.

## LESSONS AND WAY FORWARD

The oversight function of central banks operates in a dynamic environment. Changes in financial markets at European level and globally, in the legal environment and in the individual market infrastructures themselves, as well as in the interrelations between them, need to be reflected in central banks' oversight policies and activities. The past ten years have shown that the ECB's oversight function, in close cooperation with national central banks in the Eurosystem and the ESCB, and at international level, has been able to cope with these challenges. Oversight policies and standards have contributed to sound and efficient payment and settlement systems. The close interaction between overseers and the relevant system operators and participants have significantly contributed to the acceptance of the Eurosystem's oversight policies and standards in the market and their smooth implementation by the overseen entities.

In the context of future developments, and in addition to its ongoing oversight of euro market infrastructures, the ECB and Eurosystem overseers envisage inter alia focusing on (i) a further enhancement of transparency in respect of oversight objectives and activities by updating the public Eurosystem's oversight policy statement of June 2000 and by publishing a regular oversight report, (ii) a further contribution to the work of the ESCB-CESR working group, (iii) participation in the consultations among the members of the CLS and SWIFT cooperative oversight, (iv) joint work with other EU central banks in the field of business continuity, and (v) the development of a risk-based oversight framework. Considering the steady integration of financial markets and market infrastructures, particularly in the euro area, but also globally, the ECB will continue to attach great importance to close cooperation between overseers within the Eurosystem and the ESCB, as well as between overseers and other relevant public authorities, such as banking supervisors and securities regulators.

**Oversight evolves in a dynamic environment**

**Some future priorities**

## KEY CHARACTERISTICS OF THE EURO AREA \*

				
Population (millions)	319	495	302	128
GDP (PPP, € trillions)	8.9	12.6	12.0	3.7
GDP per capita (PPP, € thousands)	27.8	25.4	39.6	29.0
Share of world GDP (PPP, %)	16.1	22.7	21.3	6.6
Exports (goods and services, % of GDP) **	22.6	14.2	11.8	18.4
Gross fixed capital formation (% of GDP)	21.7	21.2	18.7	23.3
Gross saving (% of GDP)	22.5	20.8	13.4	29.6

\* 2007. \*\* The figure for the euro area excludes Cyprus and Malta.  
Sources: for euro area and EU: ECB, Eurostat, national data, IMF and ECB calculations; for the United States and Japan: national sources, IMF.



## 8 STATISTICS

*High-quality statistics are a key ingredient for the policy analysis, research and the decision-making of the ECB. Many of the functions of the ECB, as described in previous chapters, could not be properly fulfilled without the availability of timely, reliable and coherent statistical information. In addition, ECB statistics serve users such as financial market analysts, academics and the public. The statistics provided by the ECB help in understanding the decisions taken by the Governing Council and may support appropriate investment and lending decisions by the public.*

*The ECB needs an array of high-quality monetary, financial and economic statistics (including an accurate aggregate measure of price developments) in order to fulfil its prime responsibility for maintaining price stability in the euro area. An accurate picture of the current economic situation and of the structure of the euro area economy is a necessary precondition for good analysis and policy-making. At the very beginning, statistics covering the entire euro area were scarce. Over the past ten years, significant efforts have been devoted to developing new statistics and to improving existing statistics (in terms of harmonisation of concepts, frequency and timeliness required).*

*Statistical work in Europe has benefited from close cooperation between the ECB and Eurostat. The ECB is responsible for monetary and financial statistics and Eurostat is responsible for general economic statistics. The latter include the Harmonised Index of Consumer Prices (HICP), which represents the ECB's benchmark for price stability. Responsibility for external statistics (balance of payments and the international investment position) and for the euro area accounts is shared with Eurostat.<sup>1</sup>*

*European statistics, i.e. both the statistics produced by the ESCB and those produced by Eurostat and national statistical institutes have improved remarkably over the last decade, in terms both of availability and quality. The wide range of statistics now available at the ECB has also been integrated into a single framework which provides a consistent overview of the interlinkages among the transactions and positions of the various actors classified by their role in the economy (e.g. households, non-financial corporations, financial corporations, government). These so-called euro area accounts provide a comprehensive quarterly overview of euro area economic and financial developments.*

*Section 8.1 sets out the development by the ECB of reliable and timely euro area monetary, financial and external statistics for the ECB's analysis, research, decisions and communication. Section 8.2 reviews the economic statistics compiled by Eurostat. Section 8.3 focuses on the quality standards applied by the ECB when compiling its statistics. Section 8.4 sets out the way forward.*

### 8.1 ECB STATISTICS

Preparing euro area statistics during the mid-1990s was a challenge, as there were significant gaps and weaknesses in the statistics available at the time.<sup>2</sup> Even the concepts, definitions and classifications underlying the statistics were far from being standardised.

1 For more details on the exact division of labour for statistics at the European level, please refer to the "Memorandum of Understanding on economic and financial statistics between the Directorate General Statistics of the ECB (DG Statistics) and the Statistical Office of the European Communities (Eurostat)".

([http://www.ecb.europa.eu/ecb/legal/pdf/en\\_mou\\_with\\_eurostat1.pdf](http://www.ecb.europa.eu/ecb/legal/pdf/en_mou_with_eurostat1.pdf))

2 For more details on the development of euro area statistics, please refer to "The development of statistics for Economic and Monetary Union", by Peter Bull (2004).

(<http://www.ecb.europa.eu/pub/pdf/other/developmentstatisticsemu200406en.pdf>)

**Over the past ten years, significant progress in the availability of statistics for the euro area**

**Close cooperation between ECB and Eurostat**

**Many imperfections and little standardisation at the outset**

Monetary, financial and balance of payments statistics have steadily improved

The initial set of euro area statistics available to the ECB in 1999 comprised the bare essentials: harmonised balance sheets for monetary financial institutions (MFIs) from which monetary aggregates and the main counterparts to money (including MFI loans) could be calculated, a limited range of non-harmonised retail interest rates, some financial market information drawn from commercial sources and key balance of payments (b.o.p.) items, as no geographical breakdown of counterpart countries existed. Only annual government finance statistics and some limited annual data on saving, investment and financing in the newly established euro area were additionally available. In most cases, the length of the time series was very short.

In November 1999, statistics on securities issuance by euro area governments and financial and non-financial corporations were added. From early 2003, MFI balance sheet statistics comprised more detailed breakdowns of instruments, maturities and counterpart sectors. At the same time, harmonised MFI interest rates statistics were introduced, covering both a breakdown of deposits and loans by maturity and purpose. In the near future, the investment fund statistics will be harmonised and they will cover the whole euro area and better serve user needs. The ECB took over from Eurostat the release of the daily yield curves for euro area central government bonds.

Concerning external statistics, the ECB has gradually enhanced the balance of payments data (b.o.p.) for the euro area by providing more breakdowns, by showing debits and credits separately and by offering a geographical breakdown of major counterparts (e.g. United States, United Kingdom, EU countries outside the euro area, Japan, China). The ECB now also publishes a quarterly international investment position (i.i.p.) which can be considered as the financial balance sheet of the euro area as a whole, as well as a breakdown of the changes in the i.i.p. (in addition to the b.o.p. transactions, which mainly concern valuation changes of financial assets and liabilities due to price and exchange rate developments). Moreover, statistics on the nominal and real effective exchange rate and on the international role of the euro have been made available, recently supplemented by monthly harmonised national competitiveness indicators based on consumer price indices.

Many statistics and statistical indicators are also compiled to assess financial markets developments, financial integration in Europe, financial stability overall and within the EU banking sector, and the development of payments, payment infrastructures and securities trading, clearing and settlement.

First euro area accounts published in 2007

An important milestone was reached in June 2007, when the ECB released, jointly with Eurostat, the first integrated quarterly euro area economic and financial accounts by institutional sector.<sup>3</sup> These accounts provide a comprehensive and coherent overview of euro area financial and economic developments and of interrelations between the different sectors in the euro area (households, corporations and general government) and between them and the rest of the world. Euro area accounts can be considered as the national accounts for the euro area. The full integration and almost complete consistency of these accounts as well as their joint, simultaneous compilation every quarter by two institutions (the ECB and Eurostat) is a unique achievement.<sup>4</sup>

## 8.2 OTHER ECONOMIC STATISTICS

Significant progress in economic statistics but challenges remain

By the start of the Economic and Monetary Union, Eurostat (in collaboration with national statistical institutes) had developed the HICP as a harmonised price index as well as some other statistics on prices, costs, labour markets and other economic developments. Limited national accounts data for

<sup>3</sup> See article in ECB Monthly Bulletin, November 2007.

<sup>4</sup> For a complete overview of statistics available and compiled by the ECB, please refer to “ECB statistics: an overview”, ECB, 2008.

the euro area were available. However, the timeliness of these statistics was not satisfactory for monetary policy purposes. Since then, the timeliness of the relevant euro area statistics provided by Eurostat has improved significantly, following in particular the adoption of the Action Plan for EMU Statistics (2000) by the ECOFIN Council and the establishment of a list of monthly and quarterly Principal European Economic Indicators (PEEIs) in 2002. As an example, timely flash estimates for the HICP and for the quarterly GDP volume changes are important achievements and these data feed into the monetary policy and economic analyses. In addition, the range of available government finance statistics, both annual and quarterly, has significantly expanded. Methodological standards have been further improved in all areas.

However, further work in the area of statistics is still required (in terms of new statistics, frequency and/or quality of statistics available).<sup>5</sup> Improvements are still needed, mainly in the area of services, labour markets (integrating labour market statistics into the national accounts to serve growth and productivity analyses) and housing markets. Further timeliness and other quality improvements are also needed for some other statistics. This might involve a closer coordination of statistical processes among European statistical institutes and include coordinated releases of national data responding to European timeliness targets and aligned revision policies. Finally, an appropriate communication of statistics is crucial. In particular, this relates to the HICP (see Box 1).

<sup>5</sup> See “EFC 2007 Status Report on Information Requirements in EMU”, October 2007. (<http://www.ecb.europa.eu/stats/pdf/statusreport2007.pdf>)

#### Box 1

#### ROLE OF THE HARMONISED INDEX OF CONSUMER PRICES

In view of the ECB’s primary responsibility to maintain price stability, it needs high-quality statistics on price developments. In this context, it has given a prominent role to the Harmonised Index of Consumer Prices (HICP) for the euro area, compiled monthly by Eurostat. The HICP is also used to assess whether other EU countries are ready to adopt the euro as a currency. In fact, harmonised consumer price indices are produced for all EU countries.

The HICP captures the price changes relating to consumption expenditure on goods and services by all households. It is a good measure of consumer price inflation compiled according to the best international standards. The HICP for the euro area is compiled on the basis of over 1.7 million individual price observations of goods and services every month, in 200,000 outlets in some 1,500 towns and cities throughout the euro area.

For each product, prices are collected from different outlets and in different regions. For instance, the sub-index for book prices takes account of various types of books (fiction, non-fiction, reference books, etc.) sold in book shops, supermarkets and by internet suppliers. Product groups within the index are weighted according to their relative importance in total household consumption expenditure. These weights are updated regularly so as to capture changes in spending patterns over time and to keep the index representative. Much effort has been devoted to the harmonised treatment of complex issues, such as prices of insurance, health and education services and to including new or substantially changed products.

Further improvements in timeliness and quality necessary

High-quality HICP an indicator of price stability

HICP based on 1.7 million individual observations every month

Room for further harmonisation

There is always room for improvement. One priority is a more harmonised treatment of changes in the quality of products. For example, a car manufacturer may add additional safety features, such as airbags, to a new model and at the same time increase the price. To correctly measure the pure price change, it is necessary to estimate how much of the car price increase reflects the quality added to the car by installing airbags. Work is under way to further develop and harmonise the methods for quality adjustments used across countries. A second priority is the treatment of owner-occupied housing. Whereas changes in housing rents faced by tenants are included in the HICP, most of the expenditures faced by households related to owning their property are not. As the proportion of households owning or renting a house varies substantially across euro area countries, the inclusion of owner-occupied housing would increase both the comparability of the HICP across euro area countries and the coverage of the price index.

### 8.3 FRAMEWORK FOR HIGH-QUALITY STATISTICS

Statistics have many purposes and users

High-quality statistics lie at the heart of the ECB's policy analyses, decisions and communication. In the EU, the quality, reliability and impartiality of statistics are particularly important because of their use by national authorities. The monitoring of the Stability and Growth Pact, decisions on euro area enlargements, and national contributions to the EU budget and EU regional policy all depend on the high quality of the underlying statistical data.

Quality and governance are top priorities in statistics

ECB statistics adhere to widely agreed global and European statistical standards. Moreover, the ECB actively participates in the further development of these standards (e.g. System of National Accounts, European System of Accounts, Balance of Payments Manual) and, in general, cooperates closely with the relevant international organisations (European Commission, IMF, BIS, OECD, UN) to achieve worldwide harmonisation of standards and definitions for economic and financial statistics.

In 2007, the "Public commitment with respect to the ESCB's statistical function" was published, signalling the importance of quality and governance in the area of statistics. It stresses good practices, ethical standards and cooperation according to the principles of impartiality, scientific independence, cost-effectiveness, statistical confidentiality, avoidance of an excessive burden on data reporting agents and high output quality. Furthermore, the "ECB Statistics Quality Framework", published in 2008, elaborates on the quality principles that guide the production of ECB statistics.

A regular dialogue between users and compilers of statistics, the adherence to global statistical standards and a clear commitment to high quality and good governance are essential for the compilation of euro area statistics that are fit for the ECB's monetary policy-makers. In order to balance user needs for statistics with the costs of providing them, decisions on new or substantially enhanced ECB statistics are always based on a systematic assessment of the additional benefits and costs.

Need to strike a balance between user demand ...  
... and reporting burden

In any case, although statistics account for less than 2% of the overall administrative burden, European statisticians are committed to minimising the burden of responding to their surveys. One solution is to collect data only once and to share them among the statistical authorities that need them, while maintaining strict confidentiality standards. This may require legal changes as well as an effective collaboration between the ECB and national central banks, national statistical institutes

and financial supervisors. At the same time, it should be acknowledged that good-quality statistics will always have to rely on quite a number of sample surveys.

An important quality aspect also relates to the accessibility of statistics produced and disseminated by the ECB. Considerable improvements in this area have been made over the past decade. The statistical section of the Monthly Bulletin has grown considerably over time. The monthly Statistics Pocketbook provides key information in a handy format. The ECB now issues about 70 statistical press releases every year. However, the biggest step forward in data accessibility came in 2006 with the launch of the ECB's Statistical Data Warehouse,<sup>6</sup> from which data can be directly downloaded free of charge. Currently about 250,000 different users per year access this internet database.

#### 8.4 LESSONS AND WAY FORWARD

The availability and timeliness of ECB statistics has been enhanced significantly over time and now compares well with those in other major currency areas. Despite this progress, further improvements are still needed. Current developments focus on providing (i) more timely, complete and consistent euro area economic accounts, (ii) harmonised statistics on insurance corporations and pension funds, and (iii) more extensive statistics on the securitisations of assets. Furthermore, the measurement of credit risk transfers must be improved.

In general, statistics produced by the ECB should continue to meet ever-changing user needs and should reflect the most recent economic and financial environments. Trends such as globalisation, financial integration and financial innovation must also be expressed in the aggregate statistics.

Against this background, the Governing Council has endorsed a strategic vision that should further raise the effectiveness and efficiency of the collection and compilation of euro area statistics. This entails, among other things, even more intensive cooperation between the statistics departments of the NCBs and the ECB, and between them and outside partners such as statistical institutes, supervisors and representatives of the financial industry. The resulting efficiency gains could be used to close some of the remaining gaps in ECB statistics.

Further improvements in collection and compilation of statistics needed ...

... as well as close cooperation between all stakeholders

<sup>6</sup> For further details, see <http://sdw.ecb.europa.eu/>

## THE EURO BANKNOTES



## THE EURO COINS



## 9 EURO BANKNOTES – A TANGIBLE SYMBOL OF INTEGRATION



*The euro officially came into existence in 1999 as a unit of exchange and as a currency of the financial and foreign exchange markets. For most people, however, it arrived on 1 January 2002, when the banknotes and coins were introduced. During this three-year transitional period, the initial supply volumes of more than 15 billion euro banknotes were produced, an amount sufficient to cover 15,000 football pitches, as well as 52 billion euro coins. This tangible symbol of economic and monetary integration is in everyone’s pocket nowadays. But the story goes back ten years before the actual cash changeover.<sup>1</sup>*

**Three years to produce euro cash**

*This chapter is structured as follows. Section 9.1 briefly overviews the history of euro banknotes. Section 9.2 reviews the main steps in the cash changeover. Section 9.3 provides some statistics. Section 9.4 deals with currency management. Section 9.5 concerns the second series of banknotes currently in preparation.*

### 9.1 EURO BANKNOTES: A BRIEF HISTORY

The European Council agreed in 1995 to name the common European currency unit “euro”. However, unbeknown to most people, the preparations for the euro banknotes had started three years earlier with discussions on some fundamental issues. In 1994 the European Monetary Institute (EMI) Council decided on a sequence for the banknotes of 1:2:5 (e.g. €10, €20 and €50), which was also applied to euro coins (e.g. 1 cent, 2 cent, 5 cent). The system is a decimal one and makes calculations easier. It also keeps the number of banknotes needed for the payment of any amount to a minimum. Most currencies worldwide follow this denomination sequence.

**Denominations simplify handling**

The denomination range of euro banknotes is based on the ranges that existed for the national currencies. The highest denomination was set at €500, taking account of the fact that banknotes worth between €200 and €500 were issued in Belgium, Germany, Italy, Luxembourg, the Netherlands and Austria. The lowest denomination was fixed at €5.

The option of having €1 and €2 banknotes has also been considered, following calls for their introduction. The ECB has closely studied this request and consulted cash stakeholders, such as the European banking and retail associations, but has concluded that there is no need for such low-value banknotes. In fact, banknotes with a low value – like €1 or €2 banknotes – would complicate cash handling and lead to a decline in the overall quality of banknotes in circulation, as they would be used as change in small purchases, although coins are more practical for this purpose. Furthermore, public surveys showed that only one-third of the population of the euro area would like to use such banknotes. In 2004 the Governing Council decided to keep the denomination structure of the banknotes unchanged for both the current and second series of euro banknotes.

**Low-value banknotes: too costly**

In early 1996 the EMI organised a design competition for euro banknotes on the basis of the preliminary specifications. In December of that year, the EMI Council selected the winning design series depicting the “ages and styles of Europe”. Prior to its selection, the winning design had been shortlisted by a jury of independent experts in marketing, design and art history, and it had been tested in a European-wide representative survey. The designs of the euro banknotes deliberately show no national features – they are truly European.<sup>2</sup>

<sup>1</sup> See “How the euro became our money”, ECB 2007.

<sup>2</sup> See “Euro banknote design exhibition”, ECB 2003.

Identical banknotes reduce costs and simplify currency management

The inclusion of national elements in the banknotes, such as heads of state or monarchs, had been considered but was eventually ruled out for various reasons. It was easier and more efficient to produce identical euro banknotes and for the NCBs to manage stocks of such banknotes. Banknotes have to be freely exchangeable across the whole euro area. Exchangeability allows for low stocks of banknotes at one NCB to be replenished by surplus stocks from another NCB, and does not create the impression that one country is “flooding” another country with “its” banknotes bearing its national symbols. In addition, it had been agreed not to repatriate banknotes that had been withdrawn from circulation to the issuing central bank. Another reason for excluding national elements was the “pooling” of banknote production as from 2002, meaning that in principle a certain denomination is procured by only two to four NCBs, thus achieving economies of scale. This division of labour would also be less efficient if the banknotes were not freely exchangeable.

Large-scale production of banknotes started back in mid-1999 after several test print runs and adjustments to the initial specifications. In peak periods, the 15 banknote printing works involved were producing 400 banknotes per second.

## 9.2 EURO CASH CHANGEOVER<sup>3</sup>

Euro cash changeover: smooth and fast ...

Replacing all the banknotes and coins circulating among more than 300 million people in a very short period was an unprecedented logistical operation. A successful changeover could only be achieved by close coordination and cooperation between all the parties involved. Therefore, the EU institutions, national authorities, credit institutions, security carriers, retailers, consumer organisations and the cash-operated industry had been closely involved in the preparations since 1997. In order to coordinate national changeover activities and to react quickly to any incident, the Eurosystem set up a Cash Changeover Coordination Committee. In early 2002, 8 billion euro banknotes and around 38 billion euro coins replaced 6 billion national banknotes and 29 billion national coins within a relatively short time-span. Despite the exchange of such enormous quantities, the euro area members agreed on very short dual circulation periods of between four weeks and two months in order to keep costs down. To further reduce the expensive simultaneous handling of two currencies, they also agreed that they would do their best to ensure that most cash transactions could be made in euro by mid-January 2002. In fact, 50% of cash transactions were already being conducted in the new currency one week after its launch.

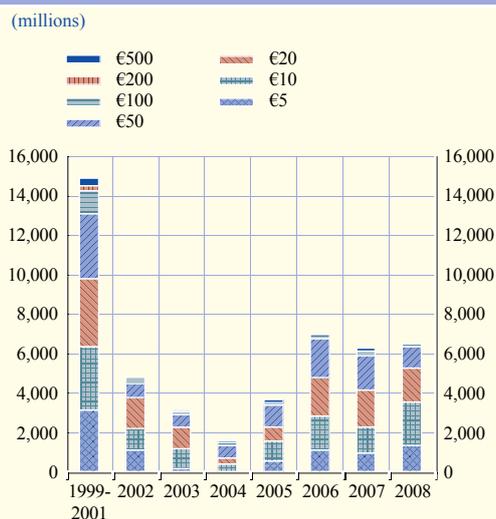
... thanks to early cash distribution and info campaign

The widespread early distribution of euro cash to banks, retailers and other businesses, which started in September 2001, was key to the rapid and smooth changeover: it ensured that the resources of the NCBs and the cash-in-transit companies were more evenly spread and thus bottlenecks in the cash supply minimised. The Eurosystem offered banks an incentive to build up banknote stocks early and to pass a proportion of them on to their business clients by introducing a deferred debiting model. It aimed to neutralise the banks' opportunity costs of holding cash which bears no interest. The approach was successful: in volume terms, close to 80% of the initial banknote demand and 97% of the total coin needs for the changeover had been distributed before 1 January 2002.

The Eurosystem conducted an €80 million “Euro 2002 Information Campaign” aimed at the public both inside and outside the euro area. Apart from providing information on the euro cash itself, e.g. on the designs and security features of the banknotes, the campaign covered the practical aspects of the changeover in order to encourage people, for instance, to minimise cash holdings in their

<sup>3</sup> See “Evaluation of the 2002 cash changeover”, ECB 2002.

Chart 1 Euro banknote production volumes



Source: ECB.

national currencies and to offer exact amounts when paying, if possible, so that retailers would not need large amounts of small change.

Unlike the first members of the euro area, the more recent entrants – Slovenia in January 2007, and Cyprus and Malta in January 2008 – introduced the euro simultaneously as cash and as an electronic means of payment. Hence, the NCBs concerned did not have enough time to procure the required euro banknotes after their country’s adoption of the euro was approved. They were thus allowed to borrow euro banknotes from the Eurosystem’s banknote stocks provided that they “pay back” these banknotes in the years to come. The ECB, in cooperation with the various NCBs, conducted information campaigns similar to the Euro 2002 campaign in order to familiarise the people of Slovenia, Cyprus and Malta with the euro banknotes and coins.

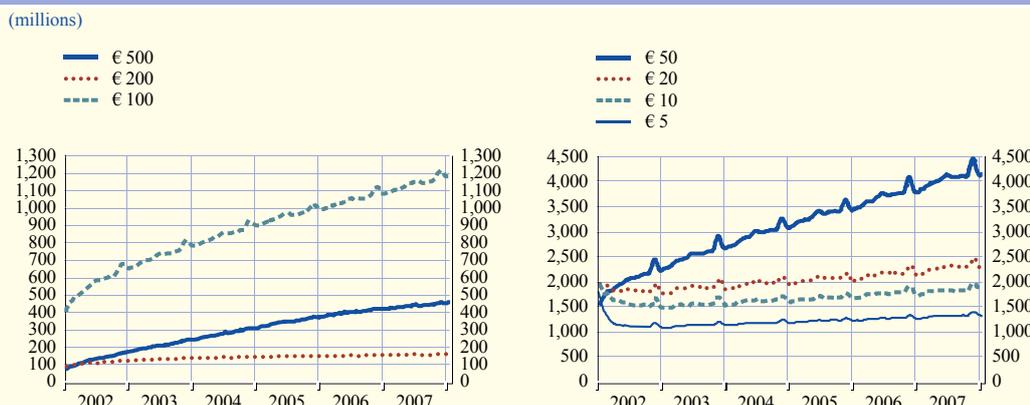
New euro area countries initially borrow banknotes

### 9.3 BANKNOTES IN CIRCULATION

After the cash changeover, the number of banknotes in circulation increased by more than the amount of the national currencies in circulation would have suggested. The strong growth was mainly due to euro area residents and non-residents adjusting their currency holdings. Banknotes are used as a means of payment, but also as a store of value. It is thus likely that euro area cash holders have adjusted their euro banknote holdings because of the different denominations, and prefer higher banknote denominations now available to them. This is, in particular, reasonable in an environment of low interest rates and low inflation expectations. The strong growth of currency in circulation in value terms is mainly in three denominations, €50, €100 and €500. However, the

Usage of euro banknotes is growing strongly

Chart 2 Euro banknotes in circulation



Source: ECB.

Banknote stocks: balanced by cross-border transfers

continually decreasing growth rates of high-denomination euro banknotes may indicate that this change in currency demand is slowly coming to an end. At the end of 2007 some 12 billion banknotes were in circulation, with a value of close to €677 billion. The value of euro banknotes in circulation was thus higher than that of US dollar banknotes in circulation, which equalled some €540 billion at end-2007, when the exchange rate was €1 = USD 1.4721. Cash users outside the euro area have started to hold more euro banknotes than they did national banknotes because of the greater convenience of holding the euro. It is estimated that, in value terms, between 10% and 20% – but potentially a figure closer to the upper end of the range – of euro banknotes circulate outside the euro area.

#### 9.4 CURRENCY MANAGEMENT

Coordinated currency management and banknote development ensures that euro banknotes are readily accepted both inside and outside the euro area. Having a multi-national currency means that cash is “moved” from one country to another, mainly by tourists, but also by business travellers, as well as people hoarding cash, resulting in both shortages and surpluses of certain banknote denominations. These imbalances are corrected within the euro area by the Eurosystem’s common stock management system, which sets benchmark levels for the NCBs’ logistical stocks and permits ad hoc bulk transfers to be made from NCBs with a banknote surplus to NCBs with a shortage. This rebalancing system allows NCBs to keep lower logistical stocks. With the help of a database, the Currency Information System, the ECB monitors the level of logistical stocks, coordinates their cross-border use and pays for the cross-border transfers.

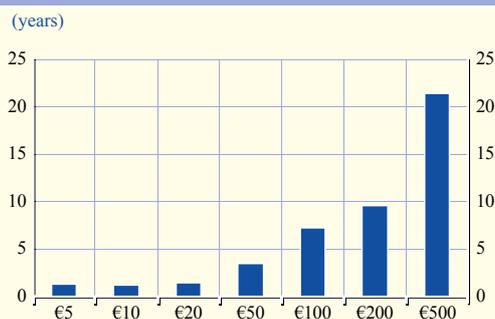
NCBs check authenticity and quality of banknotes ...

The euro banknotes’ quality deteriorates during circulation because they wear out or become dirty when passed from hand to hand, and vending machines, for example, may reject them. Consequently, the public might lose faith in them as a widely accepted means of payment. For this reason, the Eurosystem has to maintain the integrity of the banknotes, i.e. ensure that only genuine and good-quality banknotes are in circulation. The authenticity and “fitness” (quality) checks are performed by high-speed banknote sorting machines, which check various security features and fitness criteria, such as soiling, tears and other damage. Depending on how the cash cycles are organised nationally, banknotes end up in circulation for longer periods in some countries. The longer a banknote is in circulation, the more it wears out and becomes soiled. The Governing Council therefore decided in 2001 to set minimum fitness criteria, so that only banknotes of a certain quality would be re-issued by NCBs; all others would be destroyed. The Eurosystem closely monitors the quality of the banknotes in circulation by carrying out random checks every year. Over the longer term, the Eurosystem aims to enhance the durability of the euro banknotes, e.g. by having a more resistant substrate or protective coating for the low-denomination banknotes in particular, which are affected most by wear and tear.

... as do credit institutions and other cash handlers

In 2004 the Governing Council adopted a “Framework for the detection of counterfeits and fitness sorting by credit institutions and other professional cash handlers”, a set of rules

Chart 3 Average life spans of euro banknotes



Source: ECB.  
1) As at 31 December 2007.

governing the “recycling” or re-circulation of banknotes. It requires fitness and authenticity checks to be carried out by banks and other professional cash handlers. It ensures that banknotes of sufficient quality remain in circulation if banks decide to re-issue the banknotes they have received from their customers, rather than depositing them with, and receiving new banknotes from, their central bank.

This recycling option enables credit institutions and other professional cash handlers to work more effectively and cost-efficiently since less cash has to be transported to the central bank; in other words, the cash cycle is shorter. According to the framework for banknote recycling, banknotes which are re-circulated via automated teller machines and other customer-operated devices have to be checked by banknote handling machines which have been tested and found to be in order by a central bank. These testing procedures require a machine to automatically detect and segregate counterfeits and unfit banknotes. A list of the banknote handling machines which have passed the test, and which banks must use, is provided on the ECB’s website.

As euro banknotes are used across borders in the euro area, greater convergence of NCBs’ cash services helps to ensure fair competition for cash stakeholders, especially cash-in-transit companies and banks, and could allow them to fully reap the benefits of a common currency when operating beyond national boundaries. A significant step towards convergence has been to define free-of-charge and charge-incurring NCB cash services. The latest achievements have been the provision of NCB cash services to euro area credit institutions established outside their jurisdiction upon request (“remote access”) and the possibility for NCB clients to lodge euro coins at all euro area central banks. The Eurosystem is still considering a number of further steps, such as common electronic data exchange with credit institutions for cash lodgements and withdrawals, and common banknote packaging standards for use by NCBs and their clients.

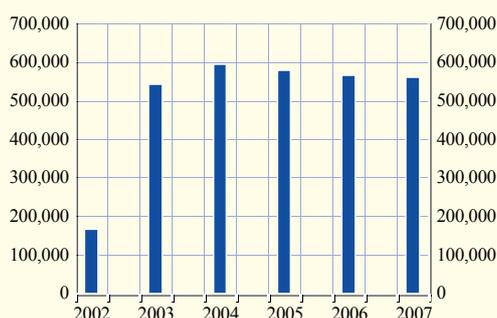
Single cash area requires convergence of NCBs’ cash services

## 9.5 SECOND SERIES OF EURO BANKNOTES

Central banks and other monetary authorities usually upgrade their banknotes after they have been in circulation for a few years to keep ahead of counterfeiters. The Eurosystem is also taking this precautionary measure and is currently developing a new series of euro banknotes. Not that there are many counterfeits: fewer than 600,000 of them – a tiny fraction of the 12 billion banknotes in circulation – are seized on average per year while in circulation, and they are mainly of low to medium quality.

Second banknote series to be issued in January 2011

Chart 4 Total number of euro counterfeit banknotes seized in circulation



Source: ECB.

The first denomination in the second series is planned to be put into circulation on 1 January 2011, and will be followed by the other denominations over a period of several years. The designs will be evolutionary, for they will incorporate the present “ages and styles of Europe” theme as well as state-of-the-art and user-friendly security features. The designs and features of the second series, in terms of functionality, are based on market research involving the public and people who handle cash professionally, and also on consultations

with the main stakeholders in the cash cycle. The ECB will announce well in advance when the current series ceases to be legal tender, i.e. when it can no longer be used to make payments. However, the NCBs will redeem euro banknotes of the “old” series for an unlimited period of time.

Today, the euro is a global currency. Together with its central bank partners in the Eurosystem, the ECB will continue to ensure that the banknotes remain a valuable and valued means of payment in the euro area and beyond.



## 10 CONCLUDING REMARKS

With the creation of the European Economic and Monetary Union (EMU) a new institutional setting and a single monetary policy framework designed to achieve price stability were established. At the centre of this framework is the ECB. This special edition of the Monthly Bulletin, celebrating the 10th anniversary of the ECB, has looked back at the ECB's and Eurosystem's work and achievements over the past ten momentous years. In order to fulfill its primary objective of price stability, the ECB has to perform a number of tasks and activities: some of these are referred to in the Treaty on European Union; others support the framework for the single monetary policy.

The launch of the euro required the development of an appropriate institutional setting for EMU. The combination of a centralised monetary policy with decentralised – although coordinated – fiscal and structural policies has been broadly satisfactory. The coordination procedures reflect the increased interdependence among euro area countries. European institutions and bodies (such as the European Parliament, the European Commission, the ECOFIN Council, the Eurogroup and others) increasingly exchange information and analyses. However, as the euro area's integration makes further progress, policies defined at the national level must give greater consideration to the requirements of the Community.

The euro area monetary policy framework has novel features. Within the new institutional setting of EMU, competence for the single monetary policy was transferred to the ECB, which received a clear mandate and was granted independence from political influence. This entails a combination of institutional independence, as well as personal, financial and functional independence. It also involves a high degree of transparency and accountability, including reporting obligations to the European Parliament.

The monetary policy strategy of the ECB gives monetary analysis a prominent role. Monetary policy decisions are taken based on the collective wisdom and knowledge of the Governing Council of the ECB. This collegiate approach has served the euro area well over the last ten years: the framework has functioned smoothly from day one, thanks also to the skills and commitment of Eurosystem staff members. It has also handled enlargement successfully. Yet various elements of the framework continue to evolve in response to changing needs, market forces, technical and organisational improvements, and legislative action.

When the ECB and the Eurosystem were created, little was known about how the euro area might function once the member countries had become monetarily integrated. Monetary policy in the early years of the euro area, and the novel circumstances, were especially challenging. From the outset, major investments were needed in analytical tools, research and statistics to complement those already made by the European Monetary Institute (the predecessor of the ECB). A vast range of harmonised euro area statistics, models and other analytical tools are now in use. Most of the methodologies and data are available to the public since they are regularly the subject of Monthly Bulletin articles and other types of publication.

After the launch of the euro, the Eurosystem's achievements have been no less important. The monetary policy strategy of the ECB is now well understood and viewed as credible. During the past ten years it has provided a solid basis for responding to a number of challenges. Average annual HICP inflation has been slightly above 2% since the introduction of the euro, despite a series of exogenous shocks. Inflation in most of the euro area countries has been significantly below the levels the countries experienced in the decades preceding the launch of the currency. Inflation volatility has likewise been significantly lower than it was previously.

**New institutional setting  
for EMU**

**New framework with novel  
features...**

**... functions smoothly and is  
adaptable**

**Limited knowledge at  
start...**

**... a vast range of statistics,  
models, and tools now  
in use**

**Low inflation and interest rates support...**

The ECB has also succeeded in anchoring longer-term inflation expectations, as derived from bond yields and surveys. This anchoring reflects the success of the ECB's monetary policy strategy and its ability to credibly deliver price stability over the medium term. For many euro area countries, this is a significant benefit and would not have been possible without the existence of an independent ECB and Eurosystem.

**... financial integration, job creation and...**

The overall effects of the euro are positive. The gains from price stability and low interest rates are supporting other favourable economic and financial developments, which are gradually, but persistently, materialising. In fact, economic and financial structures take time to evolve. Between euro area countries there is now more trade in goods and services, greater financial integration (which, in turn, is spurring financial deepening and modernisation), and increasing foreign direct investment and cross-border portfolio holdings, as well as sustained job creation in the euro area as a whole. A higher degree of financial and economic resilience has developed into a complex international environment. The international dimension of the euro and its use as a reserve and transaction currency has been gradually expanding as regional and global integration proceed further. It has become the second most important international currency behind the US dollar, although it has a less global reach.

**... international dimension of euro**

**Eurosystem actively promotes financial integration...**

Over the past ten years, the Eurosystem has actively contributed to promoting financial integration in several ways, for example, by enhancing knowledge, raising awareness and monitoring progress in this area, based on a set of financial integration indicators developed by the ECB. It acts as a catalyst for market-based initiatives to foster financial integration. Moreover, the Eurosystem has directly promoted financial integration by offering central banking services that are available throughout the euro area.

**... and arrangements for financial stability**

The Eurosystem has also been very active during the past ten years in strengthening the arrangements to contribute to financial stability. This has become ever more necessary owing to increasingly integrated and rapidly evolving financial markets in Europe. The Eurosystem therefore monitors and assesses the stability of the financial system on an ongoing basis and the ECB publishes both a semi-annual Financial Stability Review on the financial system as a whole and annual macro-prudential and structural assessments of the EU banking sector. The Eurosystem has also provided regular advice and input to the development of the legal, regulatory and supervisory framework for financial services, especially at EU level. In the field of financial crisis management, the Eurosystem has, for example, promoted the development of voluntary arrangements for cooperation among authorities, participated in EU and euro area crisis simulation exercises, and contributed to both the development of an analytical framework for the assessment of financial crises and the design of ECOFIN's 2007 strategic roadmap for further enhancing EU crisis management in the coming years. As regards the oversight of market infrastructure, the Eurosystem has successfully contributed to ensuring the safe and efficient flow of money, securities and other financial instruments through payment and settlement systems.

**Yet many challenges remain**

These ten years have also shown that the foundations of EMU were sound and that a high degree of economic convergence had been achieved by those countries that adopted the euro. However, several challenges remain. Most euro area countries still need to enhance their flexibility and adaptability to shocks. In other words, they must continue structural reform of their product and labour markets. Such reform would, in any case, have been indispensable without EMU. National governments must also continuously monitor developments in national competitiveness. Financial integration has made great strides, but further progress is necessary in several segments (such as

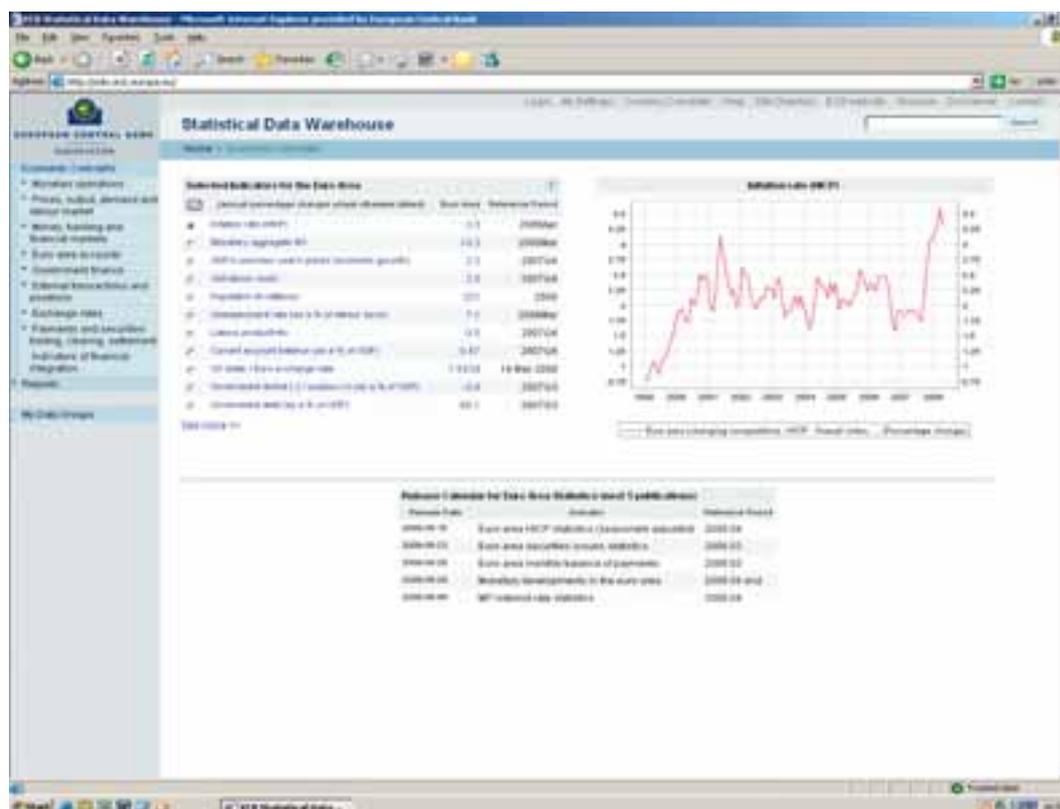
cross-border banking). The EU's framework for financial stability has not yet reached a steady state. Constant improvements are needed to keep pace with progress in financial integration and innovation, and to address the challenges arising from the complexity of the EU's institutional set-up.

The benefits and gains brought about by the euro are sustaining the adaptation and liberalisation of national economies. Reforms are aided by price stability, the absence of tensions associated with the periodical exchange rate crises experienced before the launch of the euro, and the stability and increased resilience derived from past reforms. Moreover, the fact that Europe's "world" is changing and that the euro area is becoming more integrated also govern our perspective of how the economic and monetary union will evolve. Firms are becoming more conscious of the euro area dimension of their actions and decisions. Households are increasingly conscious of the opportunities offered by an expanded economic and financial area. The public and its political representatives are starting to think beyond their national horizons and more towards a euro area dimension. This shift in mindset is gradually unfolding.

Today's achievements would have been unthinkable not many decades ago. There is indeed much to celebrate ten years into EMU. However, credibility is never obtained forever. Challenges will continue to arise and require vigilance and attention. But today there is confidence in Europe and the strength of its single currency.

Towards a euro area  
mindset

## STATISTICAL DATA WAREHOUSE



The ECB Statistical Data Warehouse is available at <http://sdw.ecb.europa.eu>. More detailed information on its functionalities is available in the Help section of this tool.

# ANNEX

## 10 YEARS OF EURO AREA STATISTICS AND THEIR COMPARISON WITH THOSE FOR OTHER MAJOR ECONOMIC AREAS

### 1. Central bank key interest rates

(end-of-period)

	Euro area <sup>1)</sup>	European Union <sup>2)</sup>	United States <sup>3)</sup>	Japan <sup>3)</sup>
1998	-	-	4.75	0.50
1999	3.00	-	5.50	0.50
2000	4.75	-	6.50	0.50
Euro area enlargement				
2001	3.25	-	1.75	0.10
2002	2.75	-	1.25	0.10
2003	2.00	-	1.00	0.10
2004	2.00	-	2.25	0.10
2005	2.25	-	4.25	0.10
2006	3.50	-	5.25	0.40
Euro area enlargement				
2007	4.00	-	4.25	0.75



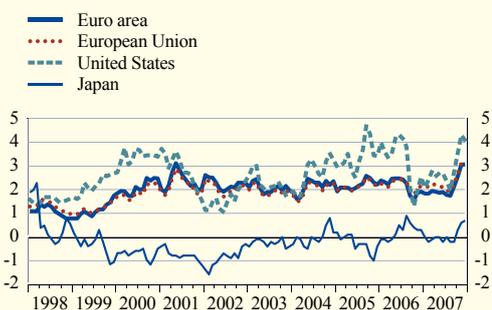
Sources: ECB, Federal Reserve System and Bank of Japan.

1) Published in the Monthly Bulletin (Chapter 1, Section 1.2) and in the Statistics Pocket Book (Chapter 8, Section 8.1), and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=143.FM.B.U2.EUR.4F.KR.MRR\\_MBR.LEV](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=143.FM.B.U2.EUR.4F.KR.MRR_MBR.LEV)).

### 2. Inflation rate (HICP/CPI)

(annual percentage changes)

	Euro area <sup>1)</sup>	European Union <sup>2)</sup>	United States <sup>3)</sup>	Japan <sup>3)</sup>
Average 1989-98	2.9	-	3.3	1.5
1998	1.1	1.3	1.6	0.7
1999	1.1	1.2	2.2	-0.3
2000	2.1	1.9	3.4	-0.7
Euro area enlargement				
2001	2.3	2.2	2.8	-0.8
2002	2.2	2.1	1.6	-0.9
2003	2.1	2.0	2.3	-0.2
2004	2.1	2.0	2.7	0.0
2005	2.2	2.2	3.4	-0.3
2006	2.2	2.2	3.2	0.2
Euro area enlargement				
2007	2.1	2.3	2.9	0.1



Sources: Eurostat, US Bureau of Labor Statistics and Japanese Statistics Bureau.

1) HICP. Backdata estimated from national CPIs. Published in the Monthly Bulletin (Chapter 5, Section 5.1.1) and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=122.ICP.M.U2.N.000000.4.INX](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=122.ICP.M.U2.N.000000.4.INX)).

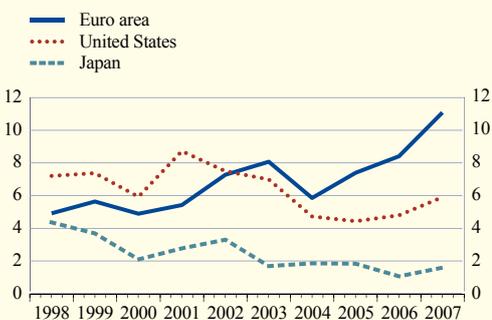
2) HICP. Published in the Statistics Pocket Book (Chapter 11, Section 11.1) and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=122.ICP.M.D0.N.000000.4.INX](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=122.ICP.M.D0.N.000000.4.INX)).

3) National CPI. Published in the Statistics Pocket Book (Chapter 1, Section 1.2).

### 3. Broad money

(annual percentage changes)

	Euro area <sup>1)</sup>	European Union <sup>2)</sup>	United States <sup>2)</sup>	Japan <sup>2)</sup>
Average 1989-98	6.3	-	3.7	4.2
1998	4.9	-	7.2	4.4
1999	5.6	-	7.4	3.7
2000	4.9	-	5.9	2.1
Euro area enlargement				
2001	5.4	-	8.7	2.8
2002	7.3	-	7.5	3.3
2003	8.1	-	7.0	1.7
2004	5.8	-	4.7	1.9
2005	7.4	-	4.4	1.8
2006	8.4	-	4.8	1.1
Euro area enlargement				
2007	11.1	-	5.9	1.6



Sources: ECB, Federal Reserve System and Bank of Japan.

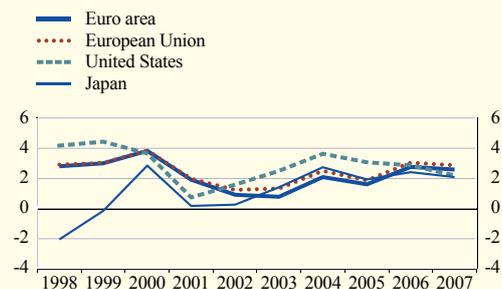
1) Published in the Monthly Bulletin (Chapter 2, Section 2.3) and in the Statistics Pocket Book (Chapter 1, Section 1.2), and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=117.BS1.M.U2.Y.V.M30.X.I.U2.2300.Z01.E](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=117.BS1.M.U2.Y.V.M30.X.I.U2.2300.Z01.E)).

2) Published in the Monthly Bulletin (Chapter 9, Section 9.2) and in the Statistics Pocket Book (Chapter 1, Section 1.2).

## 4. GDP <sup>1)</sup>

(annual percentage volume changes)

	Euro area <sup>2)</sup>	European Union <sup>3)</sup>	United States <sup>4)</sup>	Japan <sup>5)</sup>
Average 1989-98	2.2	2.2	3.0	1.9
1998	2.8	2.9	4.2	-2.0
1999	3.0	3.0	4.4	-0.1
2000	3.8	3.9	3.7	2.9
2001	1.9	2.0	0.8	0.2
2002	0.9	1.2	1.6	0.3
2003	0.8	1.3	2.5	1.4
2004	2.1	2.5	3.6	2.7
2005	1.6	1.9	3.1	1.9
2006	2.8	3.1	2.9	2.4
2007	2.6	2.9	2.2	2.1



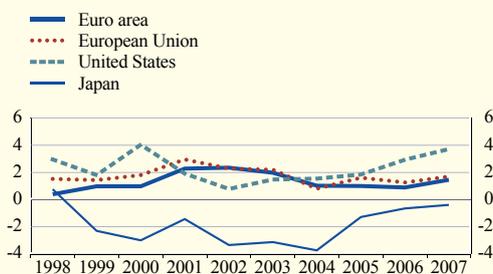
Sources: Eurostat, US Bureau of Economic Analysis, Japanese Economic and Social Research Institute and ECB calculations.

- 1) Annual data are not adjusted for variations in the number of working days.
- 2) Published in the Monthly Bulletin (Chapter 5, Section 5.2.1) and accessible via the ECB statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=119.ESA.Q.I3.N.0000.B1QG00.1000.TTTT.L.U.A](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=119.ESA.Q.I3.N.0000.B1QG00.1000.TTTT.L.U.A)).
- 3) Published in the Statistics Pocket Book (Chapter 1, Section 1.2) and accessible via the ECB statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=119.ESA.Q.V1.N.0000.B1QG00.1000.TTTT.L.U.A](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=119.ESA.Q.V1.N.0000.B1QG00.1000.TTTT.L.U.A)).
- 4) Published in the Monthly Bulletin (Chapter 9, Section 9.2.1) and accessible via the ECB statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=119.ESA.A.US.N.0000.B1QG00.1000.TTTT.L.N.A](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=119.ESA.A.US.N.0000.B1QG00.1000.TTTT.L.N.A)).
- 5) Published in the Monthly Bulletin (Chapter 9, Section 9.2.1) and accessible via the ECB statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=119.ESA.A.JP.N.0000.B1QG00.1000.TTTT.L.N.A](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=119.ESA.A.JP.N.0000.B1QG00.1000.TTTT.L.N.A)).

## 5. Unit labour costs

(annual percentage changes)

	Euro area <sup>1)</sup>	European Union <sup>2)</sup>	United States <sup>3)</sup>	Japan <sup>3)</sup>
Average 1989-98	2.4	-	2.2	0.8
1998	0.4	1.5	3.0	0.8
1999	1.0	1.4	1.8	-2.3
2000	1.0	1.8	4.0	-3.0
2001	2.3	3.0	1.9	-1.4
2002	2.3	2.3	0.8	-3.3
2003	2.0	2.2	1.5	-3.1
2004	1.0	0.8	1.5	-3.8
2005	1.0	1.6	1.9	-1.3
2006	0.9	1.3	2.9	-0.6
2007	1.5	1.7	3.7	-0.4



Sources: Eurostat, US Bureau of Economic Analysis, Japanese Economic and Social Research Institute and ECB calculations.

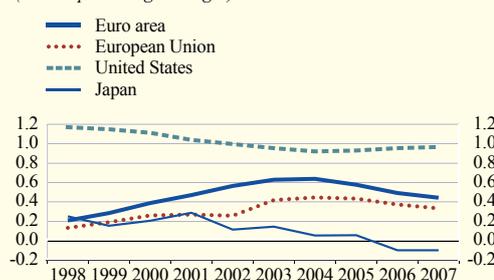
- 1) Published in the Monthly Bulletin (Chapter 5, Section 5.1.4) and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=119.ESA.Q.I3.S.1000.UNLACO.0000.TTTT.D.U.1](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=119.ESA.Q.I3.S.1000.UNLACO.0000.TTTT.D.U.1)).
- 2) Published in the Statistics Pocket Book (Chapter 11, Section 11.4).
- 3) ECB calculations.

## 6. Population

(millions)

	Euro area <sup>1)</sup>	European Union <sup>2)</sup>	United States <sup>3)</sup>	Japan <sup>4)</sup>
Average 1989-98 <sup>5)</sup>	302	479	262	125
1998	305	481	276	126
1999	306	482	279	127
2000	307	483	282	127
2001	308	484	285	127
2002	310	486	288	127
2003	312	488	291	128
2004	314	490	294	128
2005	316	492	296	128
2006	317	494	299	128
2007 <sup>6)</sup>	319	495	302	128

(annual percentage changes)



Sources: Eurostat, US Census Bureau and Japanese Statistics Bureau.

1) Annual average. Published in the Statistics Pocket Book (Chapter 2, Section 2.1) and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=119.ESA.A.I3.N.0000.POPULA.1000.TTTT.N.P.A](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=119.ESA.A.I3.N.0000.POPULA.1000.TTTT.N.P.A)).

2) Annual average. Published in the Statistics Pocket Book (Chapter 11, Section 11.6) and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=119.ESA.A.V1.N.0000.POPULA.1000.TTTT.N.P.A](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=119.ESA.A.V1.N.0000.POPULA.1000.TTTT.N.P.A)).

3) Data refer to mid-year population. Published in the Statistics Pocket Book (Chapter 1, Section 1.1).

4) Data refer to population on 1 October. Published in the Statistics Pocket Book (Chapter 1, Section 1.1).

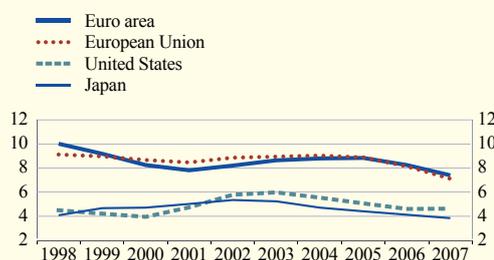
5) 1991-98 in the case of the euro area; 1993-98 in the case of the European Union.

6) Euro area, EU and Japanese data are partly forecasts.

## 7. Unemployment

(as a percentage of labour force)

	Euro area <sup>1)</sup>	European Union <sup>2)</sup>	United States <sup>3)</sup>	Japan <sup>3)</sup>
Average 1989-98	9.4	-	5.9	2.8
1998	10.0	9.1	4.5	4.1
1999	9.2	9.0	4.2	4.7
2000	8.3	8.7	4.0	4.7
2001	7.8	8.5	4.7	5.0
2002	8.2	8.9	5.8	5.4
2003	8.6	8.9	6.0	5.3
2004	8.8	9.0	5.5	4.7
2005	8.9	8.9	5.1	4.4
2006	8.2	8.2	4.6	4.1
2007	7.4	7.1	4.6	3.9



Sources: Eurostat, US Bureau of Labor Statistics and Japanese Statistics Bureau.

1) Published in the Monthly Bulletin (Chapter 5, Section 5.3.2) and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=132.STS.M.I4.N.UNEH.RTT000.4.000](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=132.STS.M.I4.N.UNEH.RTT000.4.000)).

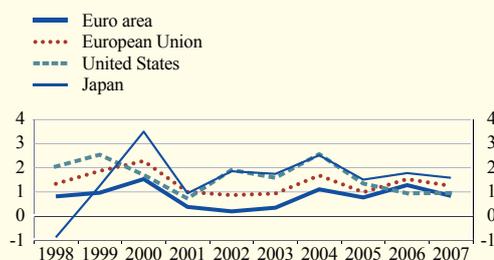
2) Published in the Statistics Pocket Book (Chapter 11, Section 11.7) and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=132.STS.M.V1.N.UNEH.RTT000.4.000](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=132.STS.M.V1.N.UNEH.RTT000.4.000)).

3) Published in the Statistics Pocket Book (Chapter 1, Section 1.2).

## 8. Labour productivity

(annual percentage changes)

	Euro area <sup>1)</sup>	European Union <sup>2)</sup>	United States <sup>3)</sup>	Japan <sup>3)</sup>
Average growth 1989-98	1.7	-	1.5	1.3
1998	0.8	1.3	2.1	-0.9
1999	1.0	1.9	2.5	1.3
2000	1.5	2.3	1.7	3.5
2001	0.4	1.0	0.7	0.9
2002	0.2	0.9	1.9	1.9
2003	0.3	0.9	1.6	1.7
2004	1.1	1.7	2.6	2.5
2005	0.8	1.0	1.3	1.5
2006	1.3	1.5	0.9	1.8
2007	0.8	1.3	1.0	1.6



Sources: Eurostat, US Bureau of Economic Analysis, Japanese Economic and Social Research Institute and ECB calculations.

1) GDP volume change per person employed. Published in the Statistics Pocket Book (Chapter 1, Section 1.2).

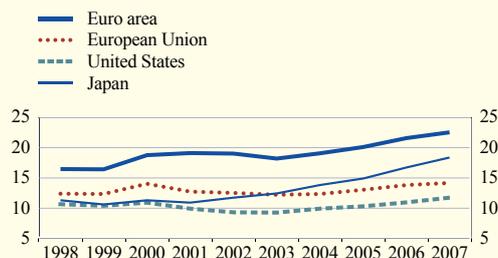
2) GDP volume change per person employed. Published in the Statistics Pocket Book (Chapter 1, Section 1.2) and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=119.ESA.A.V1.S.0000.LABPRO.1000.TTTT.Q.U.I](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=119.ESA.A.V1.S.0000.LABPRO.1000.TTTT.Q.U.I)).

3) ECB calculations.

## 9. Exports of goods and services <sup>1)</sup>

(as a percentage of GDP)

	Euro area <sup>2)</sup>	European Union <sup>3)</sup>	United States	Japan
1998	16.5	12.4	10.7	11.3
1999	16.4	12.3	10.4	10.6
2000	18.8	14.1	10.9	11.3
2001	19.1	12.8	9.9	10.9
2002	19.1	12.5	9.3	11.7
2003	18.3	12.2	9.3	12.4
2004	19.1	12.3	9.9	13.8
2005	20.1	13.1	10.3	14.9
2006	21.6	13.9	11.0	16.8
2007	22.6	14.2	11.8	18.4



Sources: ECB, Eurostat, US Bureau of Economic Analysis, Bank of Japan and Japanese Ministry of Finance.

1) Published in the Statistics Pocket Book (Chapter 1, Section 1.1).

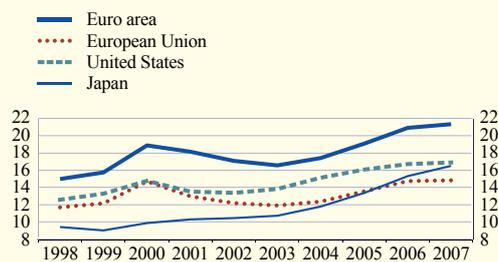
2) Accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=120.DD.A.I3.BP\\_EXP.PGDP.4F\\_N](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=120.DD.A.I3.BP_EXP.PGDP.4F_N)).

3) Data to 2000 refer to EU15, for the period 2001-03 to EU25, and from 2004 to EU27.

## 10. Imports of goods and services <sup>1)</sup>

(as a percentage of GDP)

	Euro area <sup>2)</sup>	European Union <sup>3)</sup>	United States	Japan
1998	15.0	11.7	12.6	9.4
1999	15.7	12.1	13.3	9.0
2000	18.9	14.7	14.8	9.9
2001	18.2	13.0	13.5	10.3
2002	17.1	12.2	13.4	10.4
2003	16.6	11.9	13.8	10.7
2004	17.4	12.3	15.1	11.8
2005	19.1	13.4	16.1	13.4
2006	20.9	14.7	16.7	15.3
2007	21.4	14.7	16.9	16.5



Sources: ECB, Eurostat, US Bureau of Economic Analysis, Bank of Japan and Japanese Ministry of Finance.

1) Published in the Statistics Pocket Book (Chapter 1, Section 1.1).

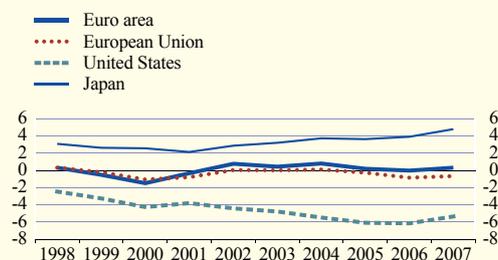
2) Accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=118.DD.A.I3.BP\\_IMP.PGDP.4F\\_N](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=118.DD.A.I3.BP_IMP.PGDP.4F_N)).

3) Data to 2000 refer to EU15, for the period 2001-03 to EU25, and from 2004 to EU27.

## 11. Current account balance <sup>1)</sup>

(as a percentage of GDP)

	Euro area <sup>2)</sup>	European Union <sup>3)</sup>	United States	Japan
1998	0.3	0.3	-2.5	3.1
1999	-0.5	-0.2	-3.3	2.6
2000	-1.5	-1.1	-4.3	2.6
2001	-0.3	-0.8	-3.8	2.1
2002	0.8	0.0	-4.4	2.9
2003	0.4	0.0	-4.8	3.2
2004	0.8	0.1	-5.5	3.7
2005	0.2	-0.2	-6.1	3.6
2006	0.0	-0.7	-6.2	3.9
2007	0.3	-0.6	-5.3	4.8



Sources: ECB, Eurostat, US Bureau of Economic Analysis, Bank of Japan and Japanese Ministry of Finance.

1) Published in the Statistics Pocket Book (Chapter 1, Section 1.1).

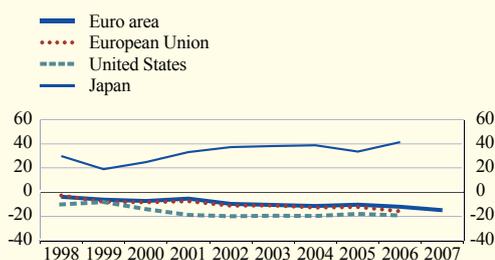
2) Accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=120.DD.A.I3.BP\\_GS\\_N.PGDP.4F\\_N](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=120.DD.A.I3.BP_GS_N.PGDP.4F_N)).

3) Data to 2000 refer to EU15, for the period 2001-03 to EU25, and from 2004 to EU27.

12. Net international investment position <sup>1)</sup>

(as a percentage of GDP)

	Euro area <sup>2)</sup>	European Union	United States	Japan
1998	-3.7	-2.8	-10.2	29.9
1999	-6.1	-7.9	-8.3	19.0
2000	-7.3	-8.4	-14.1	24.8
2001	-5.5	-7.6	-19.0	33.2
2002	-9.7	-11.2	-19.9	37.3
2003	-10.5	-11.0	-19.5	38.2
2004	-11.4	-12.8	-19.6	38.7
2005	-10.4	-12.3	-18.0	33.7
2006	-12.1	-15.8	-19.2	41.4
2007	-15.0	-	-	-



Sources: ECB, Eurostat, US Bureau of Economic Analysis, Bank of Japan and Japanese Ministry of Finance.

1) Published in the Statistics Pocket Book (Chapter 1, Section 1.1).

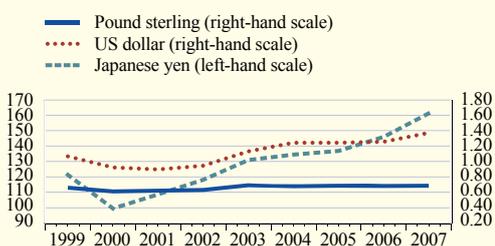
2) Accessible via the ECB Statistical Data Warehouse

(http://sdw.ecb.europa.eu/quickview.do?SERIES\_KEY=120.DD.A.I3.BP\_IIP\_NT.PGDP.4F\_N).

13. Euro exchange rate <sup>1)</sup>

(national currency per euro)

	US dollar <sup>2)</sup>	Japanese yen <sup>3)</sup>	Pound sterling <sup>4)</sup>
Average 1989-98 <sup>5)</sup>	1.1974	143.97	0.73198
1999	1.0658	121.32	0.65874
2000	0.9236	99.47	0.60948
2001	0.8956	108.68	0.62187
2002	0.9456	118.06	0.62883
2003	1.1312	130.97	0.69199
2004	1.2439	134.44	0.67866
2005	1.2441	136.85	0.68380
2006	1.2556	146.02	0.68173
2007	1.3705	161.25	0.68434



Sources: ECB.

1) Published in the Monthly Bulletin (Chapter 8, Section 8.2) and in the Statistics Pocket Book (Chapter 4, Section 4.10).

2) Accessible via the ECB Statistical Data Warehouse (http://sdw.ecb.europa.eu/quickview.do?SERIES\_KEY=120.EXR.A.USD.EUR.SP00.A).

3) Accessible via the ECB Statistical Data Warehouse (http://sdw.ecb.europa.eu/quickview.do?SERIES\_KEY=120.EXR.A.JPY.EUR.SP00.A).

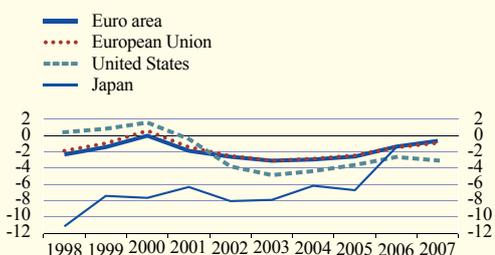
4) Accessible via the ECB Statistical Data Warehouse (http://sdw.ecb.europa.eu/quickview.do?SERIES\_KEY=120.EXR.A.GBP.EUR.SP00.A).

5) Rates to December 1998 (compiled by the European Commission) refer to the ECU.

## 14. Government deficit (-) / surplus (+)

(as a percentage of GDP)

	Euro area <sup>1)</sup>	European Union <sup>2)</sup>	United States <sup>3)</sup>	Japan <sup>4)</sup>
1998	-2.3	-1.9	0.4	-11.2
1999	-1.4	-1.0	0.9	-7.4
2000	0.0	0.6	1.6	-7.6
2001	-1.8	-1.4	-0.4	-6.3
2002	-2.6	-2.5	-3.8	-8.0
2003	-3.1	-3.1	-4.8	-7.9
2004	-2.9	-2.8	-4.4	-6.2
2005	-2.6	-2.5	-3.6	-6.7
2006	-1.3	-1.4	-2.6	-1.4
2007	-0.6	-0.9	-3.0	-



Sources: ECB, European Commission, US Bureau of Economic Analysis and Japanese Economic and Social Research Institute.

1) Published in the Monthly Bulletin (Chapter 6, Section 6.1) and accessible via the ECB Statistical Data Warehouse (http://sdw.ecb.europa.eu/quickview.do?SERIES\_KEY=121.GST.A.I4.N.B1300.DEF.B0000.CU.G).

2) Published in the Statistics Pocket Book (Chapter 11, Section 8) and accessible via the ECB Statistical Data Warehouse (http://sdw.ecb.europa.eu/quickview.do?SERIES\_KEY=121.GST.A.V1.N.E1300.SED.E0000.CU.G).

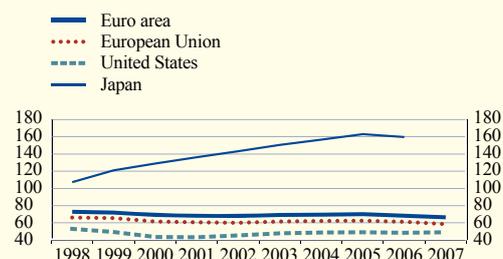
3) Published in the Monthly Bulletin (Chapter 9, Section 9.2) and accessible via the ECB Statistical Data Warehouse (http://sdw.ecb.europa.eu/quickview.do?SERIES\_KEY=121.GST.A.US.N.B1300.DEF.B0000.CU.G).

4) Published in the Monthly Bulletin (Chapter 9, Section 9.2) and accessible via the ECB Statistical Data Warehouse (http://sdw.ecb.europa.eu/quickview.do?SERIES\_KEY=121.GST.A.JP.N.B1300.DEF.B0000.CU.G).

## 15. Government debt

(as a percentage of GDP)

	Euro area <sup>1)</sup>	European Union <sup>2)</sup>	United States <sup>3)</sup>	Japan <sup>4)</sup>
1998	72.8	66.3	53.0	107.2
1999	72.0	65.7	49.4	120.9
2000	69.3	61.7	43.7	129.0
2001	68.2	60.8	43.2	136.4
2002	68.0	60.2	45.4	143.3
2003	69.2	61.7	48.0	150.5
2004	69.6	62.1	48.9	156.8
2005	70.2	62.6	49.2	163.2
2006	68.5	61.3	48.6	159.5
2007	66.4	58.7	49.2	-



Sources: ECB, European Commission, Federal Reserve System and Bank of Japan.

1) Published in the Monthly Bulletin (Chapter 6, Section 6.2) and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=121.GST.A.I4.N.B0X13.MAL.B1300.SA.G](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=121.GST.A.I4.N.B0X13.MAL.B1300.SA.G)).

2) Published in the Statistics Pocket Book (Chapter 11, Section 11.9) and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=121.GST.A.V1.N.E0X13.MAL.E1300.SA.G](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=121.GST.A.V1.N.E0X13.MAL.E1300.SA.G)).

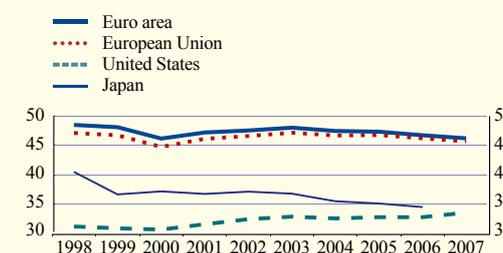
3) Published in the Monthly Bulletin (Chapter 9, Section 9.2) and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=121.GST.A.US.N.B0X13.MAL.B1300.SA.G](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=121.GST.A.US.N.B0X13.MAL.B1300.SA.G)).

4) Published in the Monthly Bulletin (Chapter 9, Section 9.2) and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=121.GST.A.JP.N.B0X13.MAL.B1300.SA.G](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=121.GST.A.JP.N.B0X13.MAL.B1300.SA.G)).

## 16. Government expenditure

(as a percentage of GDP)

	Euro area <sup>1)</sup>	European Union <sup>2)</sup>	United States <sup>3)</sup>	Japan <sup>4)</sup>
1998	48.6	47.2	31.1	40.5
1999	48.2	46.8	30.8	36.6
2000	46.2	44.8	30.6	37.1
2001	47.3	46.2	31.5	36.7
2002	47.6	46.6	32.4	37.1
2003	48.1	47.2	32.8	36.7
2004	47.5	46.7	32.5	35.5
2005	47.4	46.8	32.7	35.1
2006	46.8	46.3	32.7	34.4
2007	46.3	45.8	33.5	-



Sources: ECB, European Commission, US Bureau of Economic Analysis and Japanese Economic and Social Research Institute.

1) Published in the Monthly Bulletin (Chapter 6, Section 6.1) and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=121.GST.A.I4.N.B1300.TOE.B0000.CU.G](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=121.GST.A.I4.N.B1300.TOE.B0000.CU.G)).

2) Published in the Statistics Pocket Book (Chapter 11, Section 11.10) and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=121.GST.A.V1.N.E1300.TOE.E0000.CU.G](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=121.GST.A.V1.N.E1300.TOE.E0000.CU.G)).

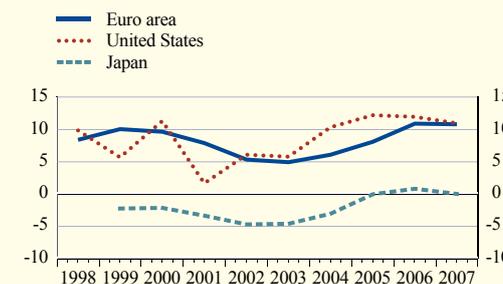
3) Published in the Statistics Pocket Book (Chapter 1, Section 1.1) and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=121.GST.A.US.N.B1300.TOE.B0000.CU.G](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=121.GST.A.US.N.B1300.TOE.B0000.CU.G)).

4) Published in the Statistics Pocket Book (Chapter 1, Section 1.1) and accessible via the ECB Statistical Data Warehouse ([http://sdw.ecb.europa.eu/quickview.do?SERIES\\_KEY=121.GST.A.JP.N.B1300.TOE.B0000.CU.G](http://sdw.ecb.europa.eu/quickview.do?SERIES_KEY=121.GST.A.JP.N.B1300.TOE.B0000.CU.G)).

## 17. Bank credit: MFI loans to the private sector

(annual percentage changes)

	Euro area <sup>1)</sup>	European Union	United States	Japan
Average 1989-98	7.1	-	5.6	-
1998	8.4	-	9.8	-
1999	10.0	-	5.7	-2.3
2000	9.6	-	11.3	-2.2
Euro area enlargement				
2001	7.9	-	1.7	-3.4
2002	5.3	-	6.1	-4.7
2003	4.9	-	5.8	-4.6
2004	6.1	-	10.3	-3.0
2005	8.1	-	12.2	0.0
2006	10.9	-	11.9	0.8
Euro area enlargement				
2007	10.8	-	10.9	0.0



Sources: ECB, Federal Reserve System and Bank of Japan.

1) Accessible via the ECB Statistical Data Warehouse ([http://sdw/quickview.do?SERIES\\_KEY=9.BSI.M.U2.N.U.A20.A.I.U2.2200.Z01.E](http://sdw/quickview.do?SERIES_KEY=9.BSI.M.U2.N.U.A20.A.I.U2.2200.Z01.E)).

18. 3-month interbank deposit rate<sup>1)</sup>

(percentages per annum; period averages)

	Euro area <sup>2)</sup>	European Union	United States <sup>3)</sup>	Japan <sup>4)</sup>
1998	3.96	-	5.57	0.66
1999	2.96	-	5.41	0.22
2000	4.40	-	6.53	0.28
Euro area enlargement				
2001	4.26	-	3.78	0.15
2002	3.32	-	1.80	0.08
2003	2.33	-	1.22	0.06
2004	2.11	-	1.62	0.05
2005	2.18	-	3.56	0.06
2006	3.08	-	5.19	0.30
Euro area enlargement				
2007	4.28	-	5.30	0.79



Sources: European Banking Federation and the British Bankers' Association.

1) Published in the Monthly Bulletin (Chapter 4, Section 4.6) and in the Statistics Pocket Book (Chapter 9, Section 9.5).

2) Accessible via the ECB Statistical Data Warehouse

(http://sdw.ecb.europa.eu/quickview.do?SERIES\_KEY=143.FM.A.U2.EUR.4F.MM.EURIBOR3MD\_LST).

3) Accessible via the ECB Statistical Data Warehouse

(http://sdw.ecb.europa.eu/quickview.do?SERIES\_KEY=143.FM.A.US.USD.4F.MM.USD3MFSR\_LST).

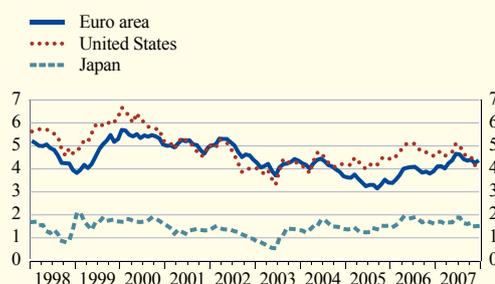
4) Accessible via the ECB Statistical Data Warehouse

(http://sdw.ecb.europa.eu/quickview.do?SERIES\_KEY=143.FM.A.JP.JPY.4F.MM.JPY3MFSR\_LST).

19. 10-year government bond yield<sup>1)</sup>

(percentages per annum; period averages)

	Euro area <sup>2)</sup>	European Union	United States <sup>3)</sup>	Japan <sup>4)</sup>
Average 1989-98	8.38	-	6.94	4.23
1998	4.71	-	5.33	1.30
1999	4.66	-	5.63	1.76
2000	5.44	-	6.03	1.76
Euro area enlargement				
2001	5.03	-	5.01	1.34
2002	4.92	-	4.60	1.27
2003	4.16	-	4.00	0.99
2004	4.14	-	4.26	1.50
2005	3.44	-	4.28	1.39
2006	3.86	-	4.79	1.74
Euro area enlargement				
2007	4.33	-	4.63	1.68



Sources: ECB, Reuters and Thomson Financial Datastream.

1) Published in the Statistics Pocket Book (Chapter 1, Section 1.2).

2) Accessible via the ECB Statistical Data Warehouse

(http://sdw.ecb.europa.eu/quickview.do?SERIES\_KEY=143.FM.A.U2.EUR.4F.BB.U2\_10Y.YLD).

3) Accessible via the ECB Statistical Data Warehouse

(http://sdw.ecb.europa.eu/quickview.do?SERIES\_KEY=143.FM.A.US.USD.4F.BB.US10YT\_RR.YLD).

4) Accessible via the ECB Statistical Data Warehouse

(http://sdw.ecb.europa.eu/quickview.do?SERIES\_KEY=143.FM.A.JP.JPY.4F.BB.JP10YT\_RR.YLD).

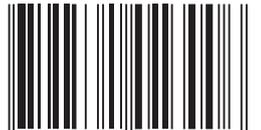
## GENERAL NOTES

The annex shows the evolution of key statistical indicators over the past ten years and, whenever possible, the average value of an indicator for the ten years prior to the introduction of the euro. The data presented in the tables are expressed on a yearly basis and, unless otherwise indicated, describe annual percentage changes.

Most of the data series for the euro area relate to the Euro 13 (including Slovenia). However, the data on government finance refer to the Euro 15 (including Cyprus and Malta), and in the cases of interest rates, monetary statistics and the HICP, the statistical series relating to the euro area cover the EU Member States that had adopted the euro at the time to which the statistics relate (see the General Notes in the "Euro area statistics" section of the Monthly Bulletin for a detailed description). The change in the composition of the euro area is indicated in the tables by a horizontal line.



ISSN 1561-0136



9 771561 013006