



EUROPEAN CENTRAL BANK

EUROSISTEM

FINANCIAL INTEGRATION IN EUROPE APRIL 2008

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APRIL 2008

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EUROSYSTEM



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## LIST OF ABBREVIATIONS

ABCP	Asset-backed commercial paper
ACH	Automated clearing house
ACI	Financial Markets Association
AMEX	American Stock Exchange
ATM	Automated teller machine
BIS	Bank for International Settlements
BSC	Banking Supervision Committee
CCBM	Correspondent Central Banking Model
CCBM2	Collateral Central Bank Management
CCP	Central counterparty
CD	Certificate of deposit
CDO	Collateralised debt obligation
CEIOPS	Committee of European Insurance and Occupational Pensions Supervisors
CESAME	Clearing and Settlement Advisory Monitoring Expert Group
CESR	Committee of European Securities Regulators
CFS	Center for Financial Studies
CLS	Continuous Linked Settlement
CMBS	Commercial mortgage-backed security
CP	Commercial paper
CPIS	Coordinated Portfolio Investment Survey
CPSS	Committee on Payment and Settlement Systems
CRD	Capital Requirements Directive
CSD	Central securities depository
EBF	European Banking Federation
ECB	European Central Bank
ECBC	European Covered Bond Council
ECD	Euro certificate of deposits
ECOFIN	Council of Economics and Finance Ministers
ECP	Euro commercial paper
ECSDA	European Central Securities Depository Association
EFMLG	European Financial Markets Lawyers Group
EFTPOS	Electronic funds transfer at point of sale
EMI	European Monetary Institute
EMU	Economic and Monetary Union
EONIA	Euro overnight index average
EPC	European Payments Council
EPM	ECB payment mechanism
ESCB	European System of Central Banks
ESF	European Securitisation Forum
EU	European Union
EUREPO	Repo market reference rate for the euro
EURIBOR	Euro interbank offered rate
FISCO	Fiscal Compliance Expert Group
FSAP	Financial Services Action Plan
FSC	Financial Services Committee
GDP	Gross domestic product
HICP	Harmonised index of consumer prices
ICM	Information and control module
ICMA	International Capital Market Association

ICSD	International CSD
IFRS	International Financial Reporting Standards
IIMG	Inter-institutional Monitoring Group
IMF	International Monetary Fund
IOSCO	International Organisation of Securities Commissions
IPMA	International Primary Market Association
IPO	Initial public offering
LIBOR	London interbank offered rate
LVPS	Large-value payment system
M&A	Merger and acquisition
MEW	Mortgage equity withdrawal
MFI	Monetary financial institution
MiFID	Markets in Financial Instruments Directive
MIR	MFI interest rate
MMF	Money market fund
MOG	Monitoring Group
MSCI	Morgan Stanley Capital International
NASDAQ	National Association of Securities Dealers Automated Quotations
NCB	National central bank
NYSE	New York Stock Exchange
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary least squares
OTC	Over the counter
PSD	Payment Services Directive
R&D	Research and development
RMBS	Residential mortgage-backed securities
RTGS	Real-time gross settlement
SEPA	Single Euro Payments Area
SIFMA	Securities Industry and Financial Markets Association
SPV	Special purpose vehicle
SSP	Single shared platform
SSS	Securities settlement system
STEP	Short-term European paper
STP	Straight-through processing
TARGET	Trans-European Automated Real-time Gross settlement Express Transfer system
TCN	Titres de créances négociables
T2S	TARGET2-Securities
UCITS	Undertaking for collective investment in transferable securities
UNIDO	United Nations Industrial Development Organization
VC	Venture capital



# PREFACE

## INTRODUCTION

This is the ECB's second annual report on "Financial Integration in Europe".<sup>1</sup> The main purpose of this report is to contribute towards the advancement of European financial integration and to raise public awareness of the Eurosystem's role in supporting the financial integration process.

Against the background of its core tasks, the Eurosystem has a keen interest in the integration and efficient functioning of the financial system in Europe, particularly in the euro area.<sup>2</sup> Financial integration is of key importance for the conduct of the single monetary policy, as a well-integrated financial system enhances the smooth and effective transmission of monetary policy impulses throughout the euro area. Furthermore, financial integration is highly relevant to the Eurosystem's task of contributing to safeguarding financial stability. In addition, financial integration is fundamental to the Eurosystem's task of promoting the smooth operation of payment systems, which also relates to its great interest in the safe and efficient functioning of securities clearing and settlement systems. Finally, in accordance with Article 105 of the Treaty, the Eurosystem supports, without prejudice to the objective of price stability, the general economic policies of the Community. Financial integration is a key component of the general economic policy of the EU, as it promotes the development of the financial system, thereby raising the potential for stronger non-inflationary economic growth.

The Eurosystem fully supports the efforts of the private sector as well as those of the European Commission, the European Parliament and the Council of Ministers to enhance the integration and development of the European financial system. In particular, the ECB works in very close and effective co-operation with the European Commission, which has primary responsibility in this field. As such, this ECB report complements the work of the European Commission aimed at enhancing European financial integration. It focuses mainly on issues

related to the ECB's core tasks and, in terms of geographical scope, on developments pertaining to the euro area. Where relevant, however, issues will be addressed from an EU perspective.

## MAIN ELEMENTS OF THE ECB WORK IN THE FIELD OF FINANCIAL INTEGRATION<sup>3</sup>

The ECB considers the market for a given set of financial instruments or services to be fully integrated, when all potential participants in such a market (i) are subject to a single set of rules when deciding to buy or sell those financial instruments or services, (ii) have equal access to this set of financial instruments or services, and (iii) are treated equally when they operate in the market.<sup>4</sup> Building on this definition, the ECB has developed quantitative indicators of financial integration in the euro area, which provide the basis for a comprehensive assessment of both the current level of financial integration and its evolution over time. Accordingly, this report starts with a chapter providing the ECB's assessment of the state of financial integration in the euro area, based on a set of quantitative indicators.

The analysis of the state of European financial integration and the monitoring of its progress over time are prerequisites for targeted action designed to foster financial integration. The Eurosystem contributes to this process in four main ways: (i) by giving advice on the legislative and regulatory framework for the financial system and on direct rule-making; (ii) by acting

1 The first report was published on 28 March 2007 and is available at <http://www.ecb.europa.eu/pub/pubprud/html/index.en.html>.

2 The Governing Council of the ECB formulated the Eurosystem's mission statement: "We in the Eurosystem have as our primary objective the maintenance of price stability for the common good. Acting also as a leading financial authority, we aim to safeguard financial stability and promote European financial integration." (For more details: <http://www.ecb.int/ecb/orga/esecb/html/mission/eurosys.en.html>.)

3 See also the ECB Monthly Bulletin articles "The integration of Europe's financial markets" (October 2003) and "The contribution of the ECB and the Eurosystem to European financial integration" (May 2006).

4 The term "market" is used in a broad sense, covering all possible exchanges of financial instruments or services, be these via an organised market, such as a stock exchange, or via an over-the-counter market created by a financial institution supplying a financial instrument or service.

as a catalyst for private sector activities by facilitating collective action; (iii) by enhancing knowledge, raising awareness and monitoring the state of European financial integration; and (iv) by providing central bank services that also foster European financial integration. In this vein, the report gives an overview of the main Eurosystem activities to foster financial integration during the past year.

Some of the ECB's initiatives are also explained in more detail in the Special Features, which provide in-depth assessments of selected issues relating to financial integration. The topics of the Special Features are mainly selected on the basis of their importance regarding the EU's financial integration agenda and their relevance for the pursuit of the ECB's tasks. In addition, some contain analytical articles on the subject of financial integration.

### FUTURE EXTENSION OF THE REPORT'S SCOPE

Financial integration is an important driver for increasing the financial system's efficiency, which also depends on other factors, such as the degree of development of the financial system and the quality of the fundamentals that determine the framework conditions of the financial market.

To capture all aspects of financial efficiency, it is therefore envisaged to widen the report's scope over time to encompass these factors as well. A first step in this direction is provided by the Special Feature in Chapter 2, entitled "Financial development: concepts and measures". Such wider analysis is also in line with the invitation by the Council of Economics and Finance Ministers (ECOFIN) to the ECB "to monitor and assess relevant institutional features that hinder the efficient functioning of the financial system, and to pursue efforts aimed at improving the financial market framework conditions."<sup>5, 6</sup>

5 See the press release of the ECOFIN meeting, Luxembourg, 10 October 2006. This request was also addressed to the European Commission.

6 See also "The role of financial markets and innovation for productivity and growth in Europe", ECB Occasional Paper No 72, September 2007.



## EXECUTIVE SUMMARY

The report comprises three main chapters.

Chapter I, together with the statistical annex, sets out the ECB's assessment of the degree of financial integration in the different segments of the euro area financial system, highlighting in particular those areas in which integration is still lagging behind and pertinent recent developments. Based on a set of quantitative indicators of financial integration developed by the ECB, the analysis covers the money, bond, equity and banking markets, as well as the underlying market infrastructures.

The degree of integration is found to vary considerably across the different market segments, depending also on the degree of integration of the respective market infrastructure. The financial market segment closest to the single monetary policy, the euro area money market, is already highly integrated. The significant progress in this area has been supported by the high degree of integration of large-value payment systems. The recently introduced TARGET2 system will establish an even more uniform wholesale payment service in the euro area. In addition, a considerable degree of integration has been achieved in government and corporate bond markets and, to an increasing extent, also in euro area equity markets. A number of initiatives to reduce the fragmentation of securities settlement systems, such as the Eurosystem's TARGET2-Securities (T2S) project and the industry Code of Conduct for Clearing and Settlement, are aimed at fostering further improvements in securities markets integration. While the euro area banking markets for wholesale and capital market-related activities also show clear signs of increasing integration, the retail banking segment has remained more fragmented, as has been the case with the underlying market infrastructure. However, the Single Euro Payments Area (SEPA), once fully implemented, will enhance the integration of the euro area payment infrastructure and is expected to provide a major impetus to further integration in the retail banking segment.

Chapter II includes four Special Features. *The first Special Feature, entitled "Financial development: concepts and measures"*, provides a selection of indicators of financial development that can be used to monitor and assess potential frictions in the functioning of financial systems. A well-functioning financial system is an EU policy priority as it allows an economy to fully exploit its growth potential, fosters the accumulation of capital and improves the diversification of risk. In addition, the ECB has a special interest in the functioning of the euro area financial system since this plays an important role in the effective performance of the tasks assigned to it by the Treaty.

The Special Feature introduces the concept of financial development, clarifies its relation to other financial system concepts, such as integration and stability, and its link to economic growth. It also presents some key evidence from the finance and growth literature on how the framework conditions of financial systems impact on the efficiency of an economy. The focus of the Special Feature lies in the presentation of a selection of indicators to quantify the functioning of financial systems in the euro area. These indicators suggest that a fair degree of heterogeneity in financial system performance exists across markets and countries in the euro area. Overall, there appears to be further scope for structural reforms in the financial sectors of the euro area.

*The second Special Feature, entitled "The STEP initiative"*, describes, by means of an example, one of the ways in which the ECB and the Eurosystem can promote financial integration in the euro area, namely by acting as a catalyst for private sector activities. Specifically, it focuses on the prominent example of this kind of activity, relating to the ECB's support for the market-led Short-Term European Paper (STEP) initiative to develop a pan-European short-term paper market.

The Special Feature provides an overview of the STEP initiative, which originated from the

observation that the short-term securities market has been the least integrated money market segment since the introduction of the euro. The main objective of the STEP initiative has been to address this gap in financial integration via the development of and the voluntary compliance of market participants with a core set of commonly agreed market standards and practices. This common framework, put forward as the STEP label for compliant issuance programmes, was formally launched with the signing of the STEP Market Convention in June 2006. The article shows that the STEP initiative has already yielded significant progress in market integration and transparency, although efforts to further expand the recognition and use of the STEP label are necessary.

The Special Feature highlights the fact that catalytic action by the Eurosystem has been instrumental in achieving the success of the STEP initiative. For example, the Eurosystem facilitated the interaction among different market participants in the preparatory phase of the project, contributed to the development of the STEP Market Convention and provided support in raising the awareness of market participants and the public at large regarding the initiative. Furthermore, some of the Eurosystem's national central banks (NCBs) are providing technical support for the labelling process, and the ECB produces daily statistics on yields and volumes relating to this new market.

*The third Special Feature is entitled "Integration and development of mortgage markets in Europe".* Mortgage markets are an important part of the euro area financial system, with mortgage loans being key retail financial services. Mortgage-backed securities also constitute a major share of the Eurosystem's collateral, second only to public debt. However, the integration process in the European mortgage markets has been slow up to now, and a high degree of diversity as to the range of products and contract types still prevails, both in the lending as well as in the secondary funding market. Apart from natural barriers, such as language

diversity and different consumer preferences, important economic, legal and institutional obstacles to further integration remain. The European Commission released a white paper on mortgage credit markets in December 2007, setting out its policy vision for promoting further integration in and development of EU mortgage markets. The Special Feature discusses the main areas of interest from the ECB's point of view, with a particular emphasis on the implications of further integration in European mortgage markets for monetary policy and financial stability.

The Eurosystem strongly supports further integration in mortgage markets, given that it could result in a more uniform transmission of monetary policy impulses and a more stable financial system. However, as more integration does not preclude the existence of certain risks to monetary and financial stability (e.g. an increased vulnerability to shocks from abroad, foreign competition that may affect credit standards), the process also has to be carefully monitored. Moreover, further integration in these markets is a process that is likely to take many years.

Although there may be scope for targeted legislative action, significant further progress can also be achieved by market participants themselves. Possible areas of action in that respect are improvements in transparency and statistics, the promotion of standardised products across countries and the development of market benchmarks. Within the scope of its responsibilities, and in line with its catalytic role, the ECB stands ready to support and assist any market initiatives in the above-mentioned areas.

*The fourth Special Feature, entitled "Integration of large-value payment and securities transactions: TARGET2, TARGET2-Securities and CCBM2",* considers the evolutionary process towards an integrated and well-functioning European market infrastructure, focusing on the contribution of the Eurosystem. More specifically, the article describes the

Eurosystem's role and activities in providing payment and settlement facilities that foster market infrastructure integration and ensure the highest standards of efficiency and safety.

During a first phase, launched during the run-up to the introduction of the euro, the Eurosystem already took a major step forward with the establishment of TARGET and the Correspondent Central Banking Model (CCBM) which enabled the area-wide settlement of large-value transactions in central bank money and the cross-border delivery of collateral to the Eurosystem. However, TARGET and CCBM did not yet allow market participants to manage their cash, collateral and securities positions in an integrated way. The recent establishment of TARGET2 as a centralised technical service not only addresses this shortcoming for euro-denominated large-value and urgent payments, but also enables the move towards a fully integrated infrastructure in the fields of securities settlement, liquidity and collateral management. The Eurosystem has initiated action to realise this opportunity with the envisaged T2S and Collateral Central Bank Management (CCBM2) facilities. Once implemented, the three "second generation" services – TARGET2, CCBM2, and T2S – will represent a quantum leap forward in the integration and quality of the euro area core infrastructure, with substantial benefits for financial market integration.

Chapter III of the report provides an overview of the main activities that the Eurosystem pursued in 2007 with the aim of advancing the integration of the euro area financial system.<sup>7</sup> Key activities related especially to the following issues:

First, as regards the *provision of advice on the legislative and regulatory framework for the financial system*, particularly important areas of ECB and Eurosystem involvement related in 2007 to the first full review of the Lamfalussy framework for financial regulation and supervision across financial sectors and to various initiatives to enhance the integration,

efficiency and safety of EU clearing and settlement systems.

Second, with respect to the *catalytic role of the ECB and the Eurosystem* for private sector activities, the Eurosystem provided further support for the Single Euro Payments Area (SEPA), which was formally launched in January 2008. Furthermore, the Eurosystem continued to contribute to the development of the STEP market, as set out in the second Special Feature.

Third, as regards *enhancing knowledge, raising awareness and monitoring the state of financial integration*, the ECB, among other things, continued its work on indicators of financial integration, further developed its work on the concept of financial development, and deepened its assessment of the major EU banking groups in the EU.

Finally, regarding *central bank services that also foster financial integration*, the launch of the TARGET2 system in November 2007 constituted a major accomplishment. The ECB also made significant progress in the development of the two important projects T2S and CCBM2, as explained in the fourth Special Feature.

<sup>7</sup> Chapter III also expands on the chapter on financial integration in the ECB Annual Report.



# CHAPTER I

## THE STATE OF FINANCIAL INTEGRATION IN THE EURO AREA

*This chapter presents the ECB's assessment of the degree of financial integration in the euro area, based on a set of financial integration indicators developed and regularly updated by the ECB.<sup>1</sup> The annex to this report also contains additional indicators and the methodological notes.*

### I INTRODUCTION

This chapter briefly touches upon the most significant developments that took place in 2007 in the money, bond, equity and banking markets. While the chapter provides an overall assessment of the state of integration in these markets, the focus is mainly on those elements that either are not yet adequately integrated or exhibit interesting dynamics. The analysis also serves as background documentation for the topics discussed in the Special Features in Chapter II.

The available evidence suggests that the degree of integration varies greatly depending on the market segment and is, among other things, correlated with the degree of integration of the underlying infrastructure. In this respect, this chapter will introduce some measures of integration in financial infrastructures, which will be analysed in more detail in the Special Feature D in Chapter II.

Finally, as set out in the preface to this report, the efficiency of a financial system depends not only on the degree of financial integration but also on the degree of its development and the quality of the fundamentals determining its framework conditions. In this respect, possible indicators of financial development are presented in Special Feature A in Chapter II.

## 2 OVERVIEW OF THE FINANCIAL MARKET SEGMENTS

### MONEY MARKETS

The euro area money market, defined as the market for interbank short-term debt or deposits, has been characterised by a high degree of integration since 1999.

The cross-sectional standard deviation of the EONIA<sup>2</sup> lending rates across euro area countries fell sharply to close to zero following the introduction of the euro, and has remained stable thereafter (see Chart 1 below and Chart C1 in the annex). During the period under analysis, an important development was the emergence of liquidity problems in the short-term money markets in the context of the global financial market turbulence. Since August 2007 the volatility of very short-term money market rates, notably the volatility of the overnight rates, increased significantly on the back of these turbulences, not only on a day-to-day basis, but also intraday. This was reflected in a sharp widening of the cross-standard deviation, in line with an overall increase in the volatility of the rates among banks in the EONIA panel. In order to ensure the orderly functioning of the money market, the ECB provided liquidity in a series of refinancing operations.

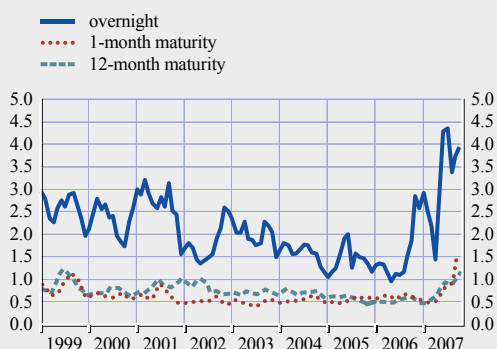
The increased cross-country dispersion in the EONIA lending rates might reflect differences in credit risk among banks or, alternatively, higher segmentation in the market and, therefore, less integration. It could also suggest a move in transactions towards a preference for national counterparties and local knowledge of credit risk. The behaviour of the related indicator for

1 For a biannual update of the indicators, see the ECB's website at <http://www.ecb.int/stats/finint/html/index.en.html>.

2 Euro overnight index average.

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

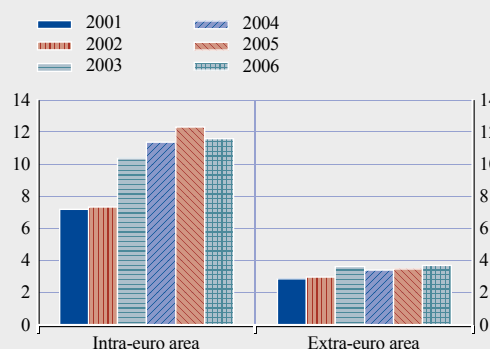
(61-day moving average; basis points)



Sources: EBF, ECB calculations.

**Chart 2 The degree of cross-border holdings of short-term debt securities issued by euro area residents**

(percentages)



Sources: Bank for International Settlements (BIS), International Monetary Fund (IMF) and ECB calculations.

Note: "Intra-euro area" is defined as the share of short-term debt securities issued by euro area residents and held by residents (excluding central banks) of other euro area countries. "Extra-euro area" is defined as the share of short-term debt securities issued by euro area residents and held by non-euro area residents (excluding central banks).

secured rates – the 1-month and 12-month EUREPO<sup>3</sup> rates – suggests that the increase in variability in credit risk is the most probable explanation. The secured rates segment, in terms of pricing, has also reached a high degree of integration (see Chart C2 in the annex) and has not been affected by the turbulences of last summer.

The high level of integration suggested by price-based indicators for the euro area money market continues to co-exist with a limited degree of cross-border activity in the euro area short-term debt securities market. Although the share of short-term debt securities issued by euro area residents and held by residents of other euro area countries has increased over time, it is quite low when compared with the corresponding indicators for bonds and equities (see Chart 2 below and Chart C3 in the annex).

The market for short-term securities has remained much more fragmented, largely owing to differences in market standards and practices relating to short-term debt instruments. By publishing statistics on yields and volumes of securities complying with the standards encompassed in the STEP market convention, the

ECB aims to enhance market transparency and to promote the development of a pan-European short-term paper (see Special Feature B in Chapter II).

Integration in the money markets has been accompanied and sustained by the high degree of integration of the large-value payment systems (LVPS), which are mostly used for interbank payment transactions. While in 1998 there were 17 LVPS, this number had declined one year later to only five systems plus TARGET, the Trans-European Automated Real-time Gross settlement Express Transfer system, which links national real-time gross settlement (RTGS) systems and the ECB payment mechanism (EPM) (see Chart C4 in the annex). Between the introduction of the euro in 1999 and the end of 2007, two of the remaining systems closed down. Among the current systems, most of the payment traffic is processed by TARGET and EURO1 (the private net settlement system). In 2007, TARGET had a market share of 89.1% by value and 60.5% by volume of payments processed in euro LVPSs. The corresponding figures for EURO1

<sup>3</sup> Repo market reference rate for euro.

were 8.5% and 34.9% respectively. The share of inter-Member State payments in the total number of payments processed by TARGET stood at about 17% in the first half of 1999. Since then, it has further increased, accounting for 23% in the first half of 2007 after having reached a peak of 25% in the first half of 2004 (see Chart C5 in the annex).

The large-value payments segment in Europe has already reached a high level of streamlining and consolidation. However, TARGET2, an enhanced and technically integrated version of TARGET introduced on 19 November 2007, provides an even more uniform wholesale payment service by means of a single technical platform that allows for the provision of a harmonised service level, ensuring a level playing field for banks across Europe. The TARGET2 system is expected to further improve the degree of integration of wholesale payment infrastructures and to provide harmonised cash settlement services in central bank money for all kinds of ancillary systems (see Special Feature D in Chapter II).

Besides the technical harmonisation, TARGET2 applies a single price structure. The fee for cross-border transactions was already

harmonised in TARGET, but TARGET2 ended the differentiation between intra- and inter-Member State payments, i.e. payments within and between countries. In addition to price harmonisation, a reduction of average prices in TARGET2 is also expected (see Chart 3).

## BOND MARKETS

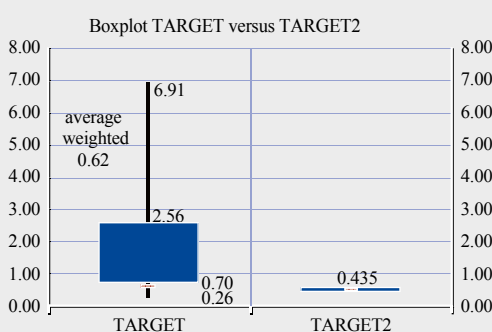
With the introduction of the euro and the removal of exchange rate risk, yields in the *government bond market* have converged in all countries and are increasingly driven by common factors, although local factors continue to play a role. Differences in liquidity as well as in the availability of developed derivatives markets tied to the various individual bond markets may partly account for these divergences. In particular, since July 2007, euro area sovereign spreads vis-à-vis the German benchmark have increased substantially. While these increases seem to have been driven mainly by liquidity concerns related to the financial market turmoil, it has also been argued that credit concerns could have played an increasing role in the divergence of yields towards the end of 2007.

The indicators used in this section may shed some light on whether the recent developments had an impact on the assessment of integration in the euro area bond markets.

In integrated markets bond yields should react to common rather than local factors. In order to test to what extent the cross-border integration of bond markets has progressed in this respect, changes in government bond yields of individual countries are usually regressed against changes in yields of a benchmark. As already seen in the previous report, the estimated slope coefficients varied substantially up to 1998, but converged afterwards towards 1, the level of perfect integration, with the exception of Greek government bond yields which only converged after 2001, after Greece joined the euro area (see Chart 4 below and Chart C7 in the annex). In 2007, the evolution of beta convergence does not signal any substantial change in the degree of integration in the government bond market.

Chart 3 TARGET versus TARGET2 prices

(in euro)

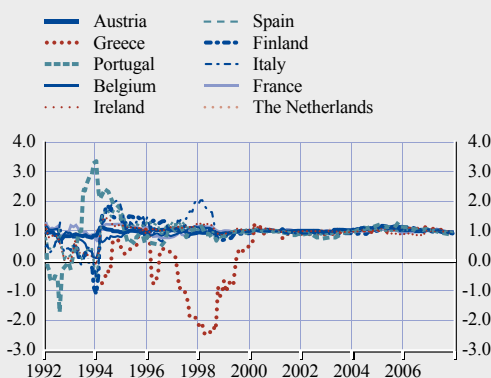


Source: ECB calculations.

Note: TARGET prices were computed on the basis of internal Eurosystem cost and revenue data from 2002 and domestic and cross-border TARGET volume figures from the same year. The average 43.5 cent price in TARGET2 was computed by applying the TARGET2 core pricing scheme to the TARGET2 volume estimate.



**Chart 4 Evolution of beta coefficients for ten-year government bond yields**

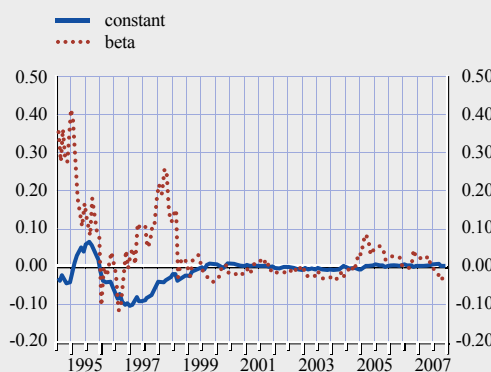


Sources: Reuters and ECB calculations.  
Note: The benchmark is the ten-year German government bond.

Additionally, differences in bond yields across countries may also reflect (perceived) differences in credit risk, but this should not be seen as an indication of poor integration. Chart 5 (see also Chart C9 in the annex) presents the estimated constant and slope coefficients of a similar model where sovereign risks are explicitly proxied by country rating dummies. Again, in a situation of perfect integration these coefficients should converge to 0 and 1 respectively, assuming that no variables other

**Chart 5 Evolution of intercept and beta coefficients for ten-year government bond yields, adjusted for sovereign risk**

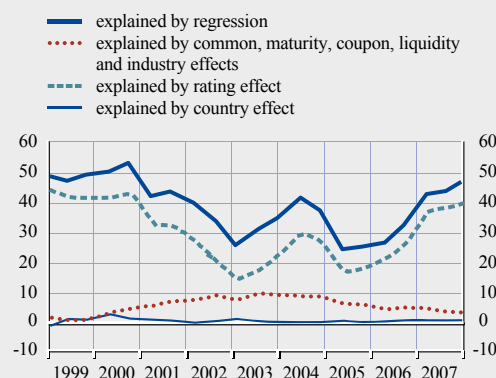
(difference from perfect integration values)



Sources: Reuters and ECB calculations.  
Note: The benchmark is the ten-year German government bond.

**Chart 6 Proportion of cross-sectional variance explained by various factors**

(percentages)



Sources: Merrill Lynch, Bloomberg, ECB calculations.

than sovereign risk are affecting the change in yield.

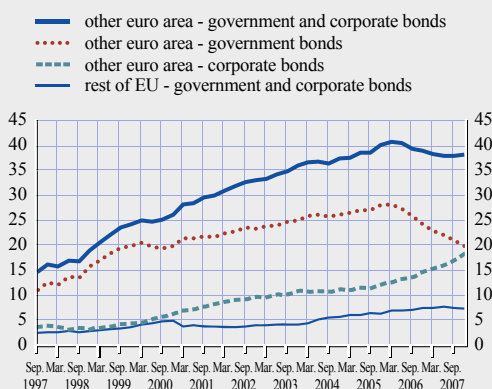
Overall, sovereign risk does play a role, albeit very small, in explaining differences in bond yields across countries. This indicator does not signal any particular increase in this factor in 2007.

The introduction of the euro has also been one of the driving forces behind the strong development of the euro area *corporate bond market*, whose integration may be measured by testing whether risk-adjusted yields have a systematic country component. In an integrated market, the proportion of the total yield spread variance that is explained by country effects should be close to zero. The respective indicator shows that the euro area corporate bond market is quite well integrated. Country effects explain only a very small constant proportion of the cross-sectional variance of corporate bond yield spreads (see Chart 6 above and Chart C11 in the annex).

The finding that bond markets are quite well integrated is also broadly confirmed when looking at the share of cross-border holdings. For instance, holdings of long-term debt securities issued by governments and non-financial corporations from other euro area countries

**Chart 7 Share of MFI 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)



Source: ECB.

and held by euro area residents have continued to increase in the last ten years (see Chart C15 in the annex). In the case of monetary financial institutions (MFIs), cross-border holdings of debt securities increased from about 15% to nearly 40% (see Chart 7 above and Chart C14 in the annex). In particular, the holdings of debt securities issued by non-financial corporations have increased markedly from a very low level, suggesting that investors are increasingly diversifying their portfolios across the euro area.

An important factor contributing to the integration of financial markets is related to financial innovation, in particular to the development of synthetic credit risk transfer products and securitisation. The principal role of financial innovation is to promote market completeness, which contributes both to the functioning and development of credit markets and to the integration and the development of euro area bond markets (see Special Feature A in Chapter II).

The integration of bond and equity markets relies greatly on the degree of integration of the underlying infrastructure, in particular of the securities settlement systems (SSSs) and central counterparties.<sup>4</sup>

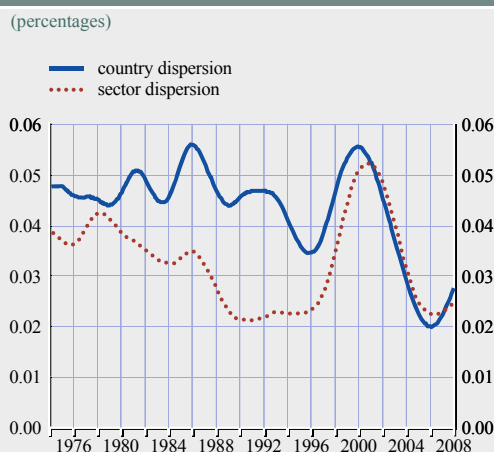
The number of legal entities operating a central securities depository (CSD) in the euro area merely declined from 21 in 1998 to 20 in 2007, while the number of central counterparties (CCPs) for financial instruments (derivatives, securities) declined from 13 to 7 over the same period. Some consolidation activities in clearing and settlement infrastructures have been purely legal mergers, and the bodies involved continue to operate and serve their own markets on separate technical platforms. At the same time, some initiatives are being taken to achieve the technical integration of clearing and settlement processes of different providers. The most significant initiatives in this regard are the Eurosystem's envisaged pan-European securities settlement platform T2S and the industry Code of Conduct for Clearing and Settlement.<sup>5</sup> SSSs and CCPs may become better integrated not only through consolidation, but also by establishing links between different systems, subject to their effective interoperability. In this respect, it is important to note that the implementation of the Code of Conduct is expected to boost interoperability between different trading and post-trading platform providers significantly. For Eurosystem credit operations within the euro area, the number of eligible links for SSSs increased considerably in the first two years of EMU (see Chart C17 in the annex). However, the use of these links in the delivery of collateral to the Eurosystem has remained moderate because of market preferences for using the Eurosystem's CCBM service.<sup>6</sup>

## EQUITY MARKETS

Measures of euro area equity market integration indicate progress in this market segment too.

- 4 The SSSs also play a crucial role in the Eurosystem's collateral framework, as they provide the necessary infrastructure to allow counterparties to transfer collateral to the Eurosystem. It is interesting to note that the share of cross-border collateral held by the Eurosystem has increased significantly, from 28% in 2002 to 48.5% in 2007 (see Chart C20 in the annex).
- 5 See Special Feature D in Chapter II as well as Chapter III for further information.
- 6 This is further discussed in Special Feature D in Chapter II.

**Chart 8 Filtered cross-country and cross-sector dispersions in euro area equity returns**



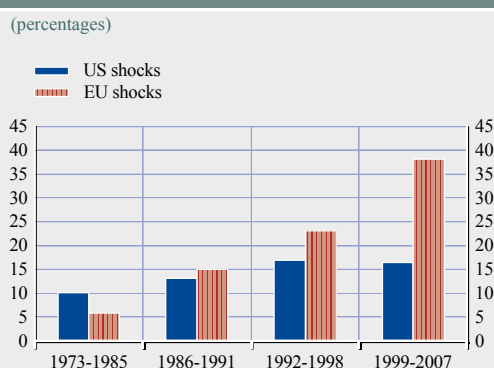
Sources: Thomson Financial Datastream and ECB calculations.

One simple indicator of equity market integration compares the country and sector dispersions in monthly stock returns over time. The more integrated the market, the greater are the benefits of diversification through sector-based equity investments strategies rather than through country-based ones. Chart 8 (see also Chart C21 in the annex) shows that this has been the case since 2001. This trend reversed in the second half of 2007. It is still too early to assess whether this is due to a national entrenchment resulting from the financial market turmoil in the second half of 2007 or whether it is of a more permanent nature.

However, both country and sector dispersions have strongly decreased in the past few years. This has rendered it more difficult to assess the relative importance of sector diversification and country diversification. In this respect, the analysis needs to be complemented with alternative indicators, which can be derived, for instance, from factor models.

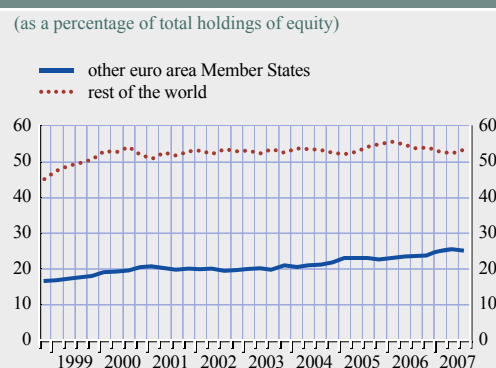
In an integrated equity market, prices should be mainly driven by common euro area factors, rather than by country-specific ones. Under the assumption that equity returns react to both local and global factors – proxied respectively by shocks in aggregate euro area and US equity markets (whereby the latter also capture effects from globalisation) – it is possible to measure the proportion of the total domestic equity volatility that can be explained by local and global factors respectively (“variance ratios”). Looking at the data, it can be seen that variance ratios have increased over the past 30 years with respect to both euro area-wide and US shocks, although the rise has been stronger for the former (see Chart 9 above and Chart C22 in the annex). This suggests that regional euro area integration has proceeded more quickly than worldwide integration, even though the level of the variance explained by common factors (about 38% for euro area shocks and 16% for US shocks) reveals that local shocks are still important.

**Chart 9 Proportion of variance in local equity returns explained by euro area and US shocks**



Sources: Thomson Financial Datastream and ECB calculations.

**Chart 10 Investment funds' holdings of equity issued in other euro area countries and the rest of the world**



Source: ECB.

Quantity-based measures also indicate a rising degree of integration in the equity markets (see Chart C24 in the annex). Between 1997 and 2006 euro area residents doubled their holdings of equity issued in other euro area countries (as a share of their total portfolio of shares issued in their own country and elsewhere in the euro area) to 29%, whereas the share of euro area equity assets held outside the euro area remained at a much lower level and increased only slightly.

Institutional investors contributed to the process of reallocation of domestic equity holdings to equity holdings elsewhere within the euro area. Chart 10 (see also Chart C25 in the annex) shows what share of investment funds' total holdings of all shares and other equity (excluding investment fund shares/units) is issued by residents of the euro area outside the Member State in which the investment fund is located. Since 1999 this share has increased from 17% to 25%.

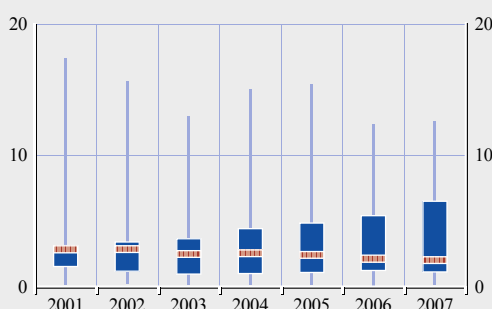
Regarding market infrastructures, the euro area securities settlement infrastructure for equities is even less integrated than the one for bonds. For instance, while the cross-border settlement of bonds is largely concentrated in two international CSDs, the international settlement of equities still relies heavily on national CSDs. In addition, other qualitative barriers – such as differences in settlement cycles or the handling of corporate events and taxation – continue to hinder progress in the integration of equities infrastructures considerably. However, efforts to reduce these barriers are currently under way, as described in Special Feature D in Chapter II and in Chapter III.

## BANKING MARKETS

Banking markets encompass interbank (or wholesale) activities, capital market-related activities and retail banking activities. The indicators reveal that the euro area retail banking markets continue to be fragmented, whereas the euro area interbank (or wholesale) market and capital market-related activities show clear signs of increasing integration.<sup>7</sup>

**Chart 11 Dispersion of the total assets of euro area bank branches across euro area countries**

(as a percentage of the total assets of the euro area banking sector)



Source: ECB.

Note: The lower and upper markers show the minimum and maximum observations among the 12 euro area countries. The bottom and top of the box show the first and third quartile. The blue line shows the median share of assets of branches in all euro area countries.

The cross-border activity of banks plays an important role in the process of financial integration. One simple way to measure the development of cross-border activity is to monitor the establishment and activity of foreign branches and subsidiaries over time.

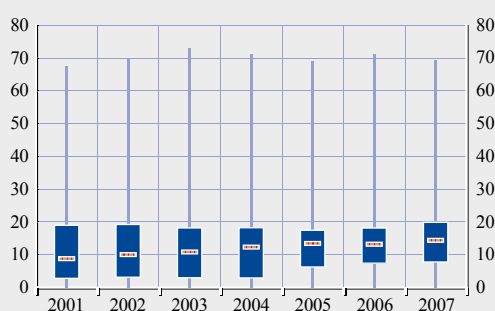
Charts 11 and 12 (see also Charts C28 and C29 in the annex) show that the share of assets held in foreign branches and subsidiaries established in other euro area countries is limited in both cases. However, whereas the median share of assets of foreign subsidiaries increased in the six years to 2007 from 8.8% to 14.4% of total banking assets, the median share of assets of foreign branches decreased slightly over time, accounting for 2.0% in 2007. These figures suggest that most of the assets of the euro area banks in other euro area countries are still held in subsidiaries rather than in branches.

Another indicator of the cross-border presence of euro area banks is their cross-border merger

<sup>7</sup> Recent research based on the European syndicated loan market concludes that less-than full cross-border integration still persists in that market segment. See L. Barbosa and N. Ribeiro, "Determinants of spreads in syndicated loans to euro area corporates", Banco de Portugal Economic Bulletin, Summer 2007.

**Chart 12 Dispersion of the total assets of euro area bank subsidiaries across euro area countries**

(as a percentage of the total assets of the euro area banking sector)



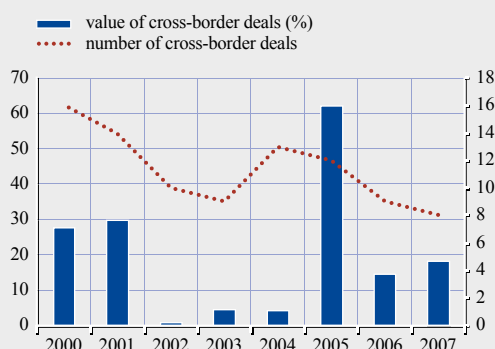
Source: ECB.

Note: See note to Chart 11.

and acquisition (M&A) activity, as shown in Chart 13 (see also Chart C30 in the annex). While on average there has been much less cross-border banking consolidation than domestic consolidation over the past few years, the indicator does reveal that there has been an increase in euro area cross-border M&A transactions in terms of value since 2003. This trend was particularly strong in 2005, when several large-value transactions were conducted, amounting to over 50% of the total M&A value in the euro area banking system. At the

**Chart 13 Euro area cross-border bank M&A activity**

(as a percentage of the total value of euro area banking sector M&As and in absolute numbers)



Sources: Bureau van Dijk (Zephyr database), ECB calculations. Note: M&A deals include both controlling and minority stakes. In 2005 some large-value euro area cross-border M&A transactions were conducted.

same time, the recent trend towards a declining number of M&A transactions also continued in the first half of 2007, signalling an overall increase in the average transaction value.

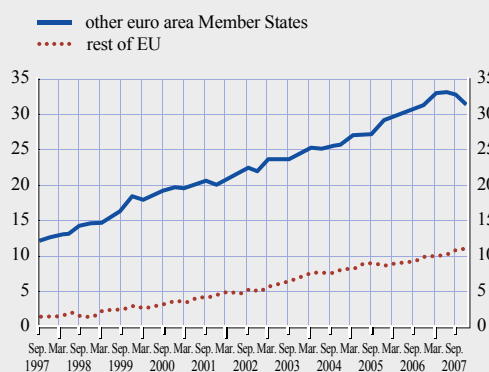
Quantity-based indicators for wholesale and capital market-related securities transactions of MFIs indicate a rising share of cross-border holdings since the end of the 1990s. Chart 14 (see also Chart C36 in the annex) shows that the share of securities issued by MFIs from other euro area countries has almost tripled in the last ten years.

The dispersion of interest rates on loans and deposits from banks to non-financial corporations and households can be taken as an indicator for the degree of integration in the retail bank market. Chart 15 (see Chart C32 in the annex) shows that the euro area cross-country dispersion of bank interest rates, in particular of interest rates on loans to households for consumption purposes, has remained relatively high and has tended to increase in recent years while the dispersion of interest rates has been lower in the case of loans for house purchases (see also the Special Feature C in Chapter II).

Although there are still significant differences in the levels of interest rates in euro area countries,

**Chart 14 MFI holdings of securities issued by MFIs: outstanding amounts by residency of the issuer**

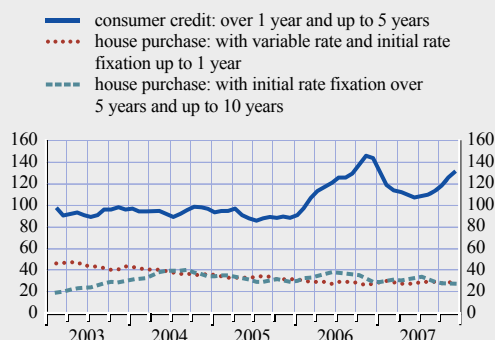
(percentages; as a share of total holdings; excluding the Eurosystem)



Source: ECB.

**Chart 15 Cross-country standard deviation of MFI interest rates on loans to households**

(basis points)



Source: ECB.

Note: The measure is based on MFI interest rates on new business.

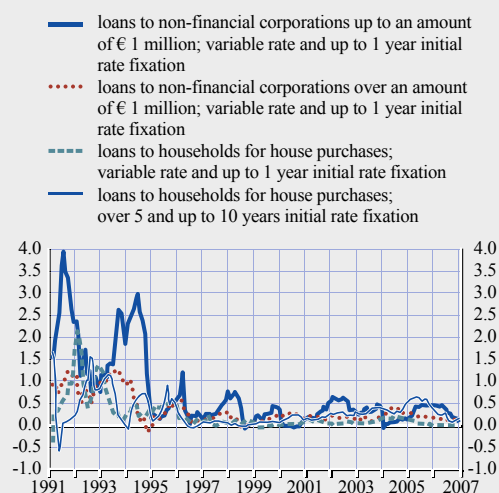
a process of convergence is underway. One way to measure this process is to see whether interest rates across euro area countries have converged to a specific benchmark over time. For the purposes of this report, the benchmark has been chosen to be the lowest interest rate level within a euro area country in each category, under the assumption that this should reflect the level towards which, as a result of increased integration and competition within the euro area,

the interest rates for the same product in other euro area countries should converge.<sup>8</sup> In order to measure the speed of convergence, the important parameter is the  $\beta$ -coefficient, which is the estimated coefficient of a regression where the change in the spread between a specific country interest rate and the benchmark is regressed on the lagged spread. Negative values of the  $\beta$ -coefficient signal that convergence is taking place. In particular, a coefficient close to -1 signals a completed convergence process. The presence of country-specific effects in the estimation controls for the existence of differences at country level.

Large values of the country-specific effects indicate the existence of market heterogeneity that may be related to differences in institutional and other factors. Chart 16 (see also Chart C33 in the annex) shows the evolution of the average value of the country effects. These effects have

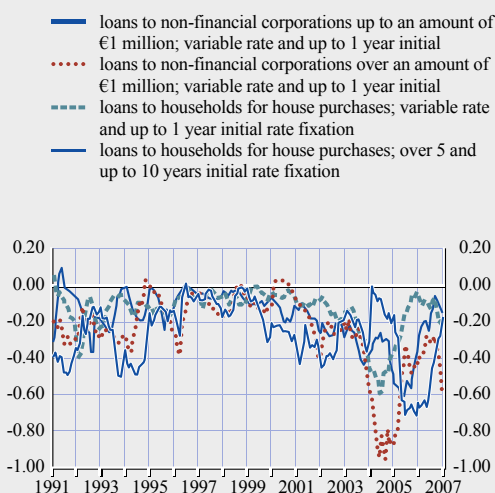
<sup>8</sup> See also L. Vajanne (2006), Integration in euro area retail banking markets – convergence of credit interest rates, Suomen Pankki, Working paper No 8. This methodology does not take into consideration differences in credit risks across countries and the fact that loan interest rates could be lower than what would be the efficient outcome.

**Chart 16 Intercept convergence for selected banking retail interest rates**



Source: ECB.

**Chart 17 Beta convergence for selected banking retail interest rates**



Source: ECB.



become smaller over time, pointing to a reduction in the differences for some selected indicators.

Chart 17 (see also Chart C 34 in the annex) reports the evolution of the  $\beta$ -coefficient over time for selected interest rates. The fact that the coefficient is almost always negative indicates that the process of convergence has been continuing over time, although the speed of convergence (given by the size of the coefficient) tends to be far from -1.

In this respect, it should be noted that differences in bank interest rates can be due to several factors, such as different conditions in national economies (credit and interest rate risk, firm size, industrial structure, degree of capital market development), institutional factors (taxation, regulation, supervision, consumer protection), and financial structures (degree of bank/capital market financing, competitiveness).<sup>9</sup> Moreover, the co-existence of different products in different countries may not be a symptom of lack of integration; rather, it may result from different preferences, the age structure or other intrinsic characteristics of the population.

The low level of retail banking integration is also associated with a relatively high level of fragmentation of retail payment infrastructures (see Charts C43 and C44 in the annex), where procedures, instruments and services offered to customers are not yet completely harmonised. This shortcoming is being addressed in the context of the SEPA project. With the realisation of SEPA, there will no longer be any differences in the euro area between national and cross-border retail payments.<sup>10</sup>

<sup>9</sup> See “Differences in MFI interest rates across euro area countries”, September 2006.

<sup>10</sup> See Chapter III for updated information on SEPA. A comprehensive overview of the SEPA project was provided in Special Feature C in Chapter II of the 2007 ECB Report on Financial Integration.

## CHAPTER 2

### SPECIAL FEATURES

#### A. FINANCIAL DEVELOPMENT: CONCEPTS AND MEASURES

*Previous research and policy work has emphasised the importance of financial integration for financial market efficiency. Some frictions in financial markets can persist even if financial integration is complete. The development of financial systems helps to overcome these frictions. Financial development is therefore complementary to financial integration in fostering financial market efficiency. This Special Feature provides a selection of indicators of financial development that can be used to monitor and assess potential frictions (and therefore a lack of financial development) in the functioning of financial systems. These indicators suggest a fair degree of heterogeneity across markets and countries in the euro area. Overall, there appears to be further scope for structural reforms in the financial sectors of the euro area.*

#### I INTRODUCTION

This Special Feature focuses on the functioning of the financial sector and its contribution to productivity, innovation and growth in the euro area. A well-functioning financial system contributes to allowing an economy to fully exploit its growth potential, as it ensures that the best real investment opportunities receive the necessary funding. Moreover, an efficient financial system fosters the accumulation of capital, enhances risk sharing and improves the diversification of risk. Consequently, the financial system has received special attention in European public policy in recent years.<sup>1</sup> The ECB has a special interest in the functioning of the euro area financial system since it plays a crucial role in the implementation and transmission of the single monetary policy, it has implications for the ECB's task of helping to safeguard financial stability and is important for the smooth functioning of payment and securities settlement systems.<sup>2</sup>

While financial integration is an important driver for increasing the efficiency of a financial system,

the latter also depends on other factors such as the level of its development and the quality of the fundamentals determining the framework conditions of financial markets. For example, to understand how problems in the market for sub-prime residential mortgages in the US spilled over globally first to other credit markets and then to the money markets, it is necessary to consider asymmetric information problems between buyers and sellers of complex financial products. To capture all aspects of financial efficiency, it is therefore envisaged to widen the scope of the report on Financial Integration in Europe over time to address these issues.<sup>3</sup>

This Special Feature is a first step in this direction.<sup>4</sup> Section 2 introduces the concept of financial development and looks at its relation to other financial system concepts such as integration

- 1 The EU made structural reform of the financial sector one of the priorities under the Lisbon Agenda. In particular, in the European Commission's Financial Services Action Plan (FSAP) (1999-2004), the implementation of which is in the process of being finalised in Member States, greater European financial integration to complete the single market for financial services is an important objective. Following up on this, the Commission published a white paper explaining its financial sector policies for the period from 2005 to 2010 (EU commission, "White paper – Financial Services Policy 2005-2010", December 2005).
- 2 The interest of the ECB in financial sector issues is, apart from this report and the first issue of the ECB's report "Financial integration in Europe" (March 2007), also reflected inter alia in the articles entitled "Recent developments in financial structures of the euro area" and "The contribution of the ECB and the Eurosystem to European financial integration" in the October 2003 and May 2006 issues of the ECB's Monthly Bulletin respectively, in the publication of the bi-annual ECB Financial Stability Review since December 2004 and in V. Gaspar, P. Hartmann and O. Sleijpen (eds.) (2003), "The Transformation of the European Financial System", Proceedings of the Second ECB Central Banking Conference, ECB, Frankfurt.
- 3 This is in line with the ECOFIN's invitation to the ECB and the European Commission "to monitor and assess relevant institutional features that hinder the efficient functioning of the financial system, and to pursue efforts aimed at improving the financial market framework conditions." (see the press release of the ECOFIN meeting, Luxembourg, 10 October 2006).
- 4 This Special Feature and its conceptual background draw extensively on the article entitled "Assessing the performance of financial systems" in the October 2005 issue of the ECB's Monthly Bulletin and on P. Hartmann, F. Heider, E. Papaioannou and M. Lo Duca (2007), "The Role of Financial Markets and Innovation in Productivity and Growth in Europe", ECB Occasional Paper No 72; an earlier version of this Occasional Paper was prepared as a background document for a discussion of the EU finance ministers and central bank governors at the informal ECOFIN meeting in Helsinki on 8 and 9 September 2006.



and stability and its link to economic growth. Section 3 presents some key evidence from the finance and growth literature that studies how the framework conditions of financial systems impact on the efficiency of an economy. Sections 4 and 5 present a selection of indicators to quantify the functioning of financial systems in the euro area. Section 4 shows indicators that are of general nature and that cannot be linked to a specific market, while Section 5 considers indicators pertaining to bond, equity and banking markets respectively. Where possible, findings on these indicators for the 12 euro area countries, the euro area aggregate, other European countries (Sweden, Switzerland and the United Kingdom) and major non-European countries (the United States and Japan) are displayed.<sup>5</sup> Subject to data availability, indicators are tracked over time to identify trends. The comparison with non-euro area countries allows to distinguish trends which are specific to the euro area and trends which are not. Section 6 concludes.

## 2 CONCEPTUAL BACKGROUND

A financial system allocates resources from agents which have a surplus to those which have a shortage of funds. It can be defined as the set of markets, intermediaries and infrastructures through which households, corporations and governments obtain funding for their activities and invest their savings.<sup>6</sup> For example, firms may see profitable real investment opportunities, but may not have enough internal funds to finance them. Households may want to even out consumption over their life-cycle by investing their savings in assets that pay a return when their income is reduced due to retirement. Finally, governments may wish to increase investment spending during recessions, drawing on the savings of other sectors.<sup>7</sup>

Chart 18 below presents a simple framework to guide and summarise discussions of the performance of financial systems.

There are three levels of the analysis. The first level concerns the “conditioning”

elements of financial systems. These are fundamental elements that do not change very fast and therefore tend to be taken as given by market participants, e.g. legal and regulatory frameworks or the balance between intermediaries and markets. The second level relates to the performance of financial systems, e.g. with respect to how well information is incorporated into stock prices or the extent of securitisation. The third level focuses on the performance of the economy as a whole, using standard economic objectives such as growth and price stability.

This Special Feature concentrates on how the fundamentals of a financial system relate to its performance. While previous research and policy work has emphasised the importance of financial integration, this Special Feature focuses on the role of financial development. Financial integration and financial development are distinct, but interrelated because they both affect the performance of a financial system. Integration generates competitive pressures on financial intermediaries, creates economies of scale, increases overall market liquidity and improves the scope for diversification and risk sharing.<sup>8</sup> However, frictions in financial markets

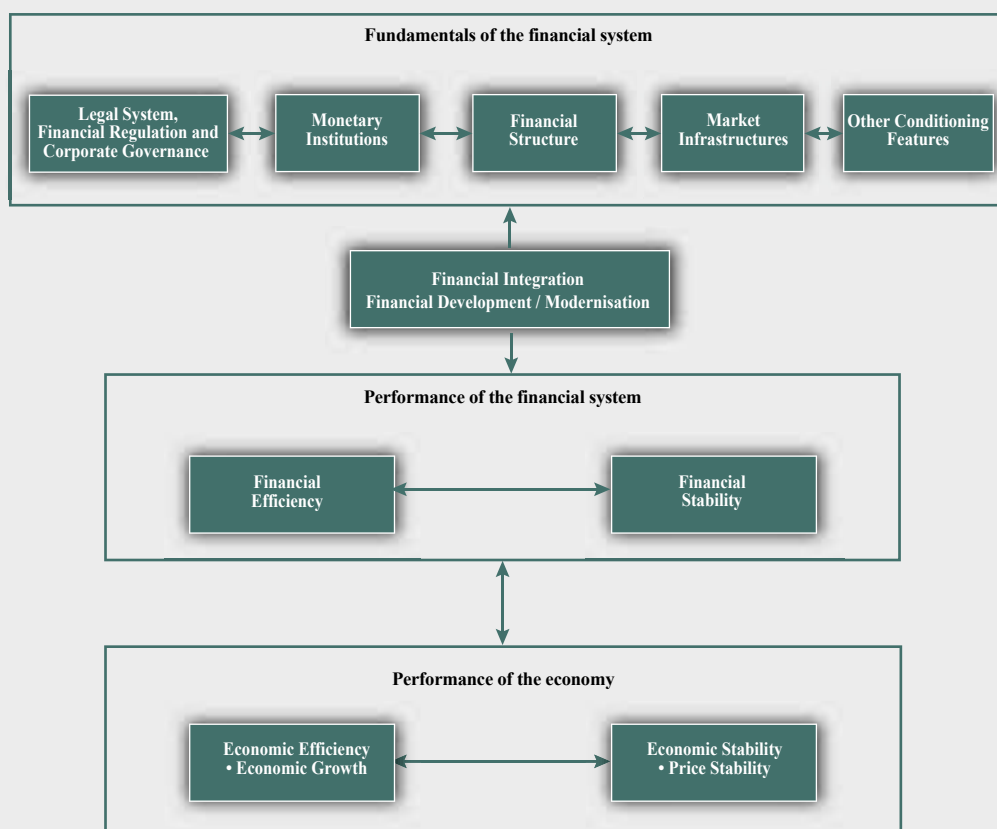
5 Slovenia became member of the euro area on 1 January 2007. Cyprus and Malta joined the euro area on 1 January 2008. They are not included as all the data refer to the period before their entry.

6 See P. Hartmann, A. Maddaloni and S. Manganelli (2003), “The Euro-Area Financial System: Structure, Integration and Policy Initiatives”, *Oxford Review of Economic Policy*, 19, pp. 180-213. Early work on finance and growth can be found in J. Schumpeter (1912), “Theorie der Wirtschaftlichen Entwicklung”, Duncker und Humblot, Leipzig; R. Goldsmith (1969), “Financial Structure and Development”, Yale University Press, New Haven, Connecticut; and R.I. McKinnon (1973), “Money and Capital in Economic Development”, Brookings Institution, Washington, DC.

7 Accordingly, the flow of funds in the euro area shows that the household sector is a net provider of funds, whereas the government and non-financial firm sectors are net receivers of funds. In line with its intermediation role in these flows, the financial sector is in balance (see ECB, “Report on Financial Structures”, October 2002).

8 For evidence on competition among financial intermediaries and the impact of integration in banking on financial development see P.E. Strahan (2003), “The Real Effects of US Banking Deregulation”, *The Federal Reserve Bank of St. Louis Review*, 85, pp. 111-128; and M. Bertrand, A. Schoar and D. Thesmar (2007), “Banking Deregulation and Industry Structure: Evidence from the French Banking Reforms of 1985”, *Journal of Finance*, 62, pp. 597-628; and P. Hartmann et al. (2007), op. cit.

Chart 18 Financial system concepts and their interrelation



Source: ECB.

can persist even after financial integration is completed.

An important source of frictions is asymmetric information among economic agents active in the financial system. For example, investors delegate real investment decisions to managers who usually have better information about the quality of the investment. Since investors cannot perfectly monitor managers they demand a premium on their investment return that increases the cost of capital for firms. The drying-up of the interbank market during the sub-prime mortgage turmoil is another example of how asymmetric information leads to frictions. As a bank may not know what risks it will be exposed to by lending to another bank that in turn may face large negative shocks, e.g.

due to credit lines to issuers of collateralised debt obligations (CDOs), it protects itself by charging a higher interest rate or, in the extreme, by not lending at all (this is an example of adverse selection).<sup>9</sup> Asymmetric information can be directly reduced via more transparency and disclosure. Venture capital financing and bank relationship financing are indirect responses of financial systems to this problem,

<sup>9</sup> For classic accounts of market breakdowns and adverse selection caused by asymmetric information see G. Akerlof (1970), "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism", *Quarterly Journal of Economics*, 84, pp. 488-500; J. Stiglitz and A. Weiss (1981), "Credit Rationing in Markets with Imperfect Information", *American Economic Review*, 71, pp. 393-410; and S. Myers and N. Majluf (1984), "Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have", *Journal of Financial Economics*, 13, pp. 187-221.

which is particularly pronounced for small and medium-sized firms that constitute large parts of the corporate sector and also account for much of the employment in European economies. For larger and more mature firms, the pricing mechanism in stock markets is important for reducing asymmetric information.

A related friction is caused by providers and users of capital having different investment objectives. For example, owners of firms may wish to maximise value, whereas other stakeholders may concentrate on maintaining control or increasing the size of the firm.<sup>10</sup> Similarly, borrowing households may have different risk preferences than banks, which are primarily interested in loan repayment. These differences distort investment decisions. Good corporate governance and reliable enforcement through the legal system help financial systems to minimise such inefficiencies.

Other sources of frictions are the dispersion of capital across many investors and the mismatch between the time horizons of financial investors and real investment projects.<sup>11</sup> The dispersed supply of capital needs to be pooled through intermediaries and markets. Human capital and physical assets used in production are illiquid whereas households often wish to preserve the flexibility to use their savings for consumption. Financial institutions and markets solve these problems to a large extent by pooling large numbers of investors and performing maturity transformations.

Finally, there are frictions in the exchange of goods and services more generally, such as transaction costs, which can be alleviated through an efficient financial system. Sight deposits, credit cards with overdraft facilities and special forms of finance, such as consumer credit, help households in the exchange process.

The development of financial systems helps to overcome these frictions. It refers to the process of financial innovation and organisational improvements that reduces asymmetric information, increases the completeness of

markets, adds possibilities for agents to engage in financial transactions through (explicit or implicit) contracts, reduces transaction costs and increases competition.

The performance of a financial system has two basic dimensions, its efficiency and its stability. This Special Feature focuses only on the efficiency of a financial system, which can be understood as a condition in which the available capital in a financial system is allocated towards the most valuable investment opportunities at the lowest possible cost.<sup>12</sup> An efficient allocation of capital therefore supports economic growth. In an efficient financial system markets are competitive, information is accessible, credible and widely distributed, and agency conflicts are resolved e.g. through contracts enforced by well-functioning legal systems. Frictions in the financial system hamper the allocation of capital, lead to inefficiency, and impair the contribution of finance to growth.<sup>13</sup>

There is an extensive literature on how financial development promotes economic growth (the link between the second and third levels in Chart 18) which we present next.<sup>14</sup>

10 See M.C. Jensen and W.H. Meckling (1976), "Theory of the Firm: Managerial Behaviour, Agency Costs and Ownership Structure", *Journal of Financial Economics*, 3, pp. 303-360.

11 See F. Allen and D. Gale (1997), "Financial Market, Intermediaries and Intertemporal Smoothing", *Journal of Political Economy*, 105, pp. 523-546.

12 Distinct from financial efficiency, financial stability can be understood as 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, thereby mitigating the likelihood of disruptions in the financial intermediation process which are severe enough to significantly impair the allocation of savings to profitable investment opportunities (see the preface of the December 2006 ECB Financial Stability Review). The distinction between these two concepts is based on standard economic theory which distinguishes, for example, between the efficiency and the stability of equilibria in an economic system, and on the fact that ensuring efficiency and stability often requires different policies.

13 See R. Levine (2005), "Finance and growth: Theory and evidence", in P. Aghion and S. Durlauf (eds): *Handbook of Economic Growth*, Elsevier, Amsterdam.

14 See R. Levine (2005), op.cit.; and E. Papaioannou (2008), "Finance and Growth: a Macroeconomic Assessment of the Evidence from a European Angle", in X. Freixas, P. Hartmann and C. Mayer (eds), *Handbook of European Financial Markets and Institutions*, Oxford University Press, Oxford, United Kingdom, pp. 68 - 98.

### 3 EVIDENCE FROM THE FINANCE AND GROWTH LITERATURE

The first significant econometric evidence using substantive cross-country panel data showed that countries in which banks extend more credit to the private sector experience stronger economic growth.<sup>15</sup> Next, it was found that both the extent of bank lending and the development of stock markets have independent beneficial effects on economic growth.<sup>16</sup> Furthermore, the positive effect of financial intermediation on growth is due to increases in total factor productivity rather than increased investment per se or the accumulation of human capital.<sup>17</sup>

The literature then examined more closely how exactly finance affects growth. Sectors and firms that depend more on external financing for technology-related reasons grow faster in countries in which banks extend more credit to the private sector, stock markets are larger and accounting standards are of higher quality.<sup>18</sup> Further empirical work also suggested that industries in countries with more developed financial markets and with more open trade possibilities are able to adopt new production technologies more quickly.<sup>19</sup> Deregulation in the banking sector in the United States and in France, e.g. lifting the restrictions on out-of-state branching or on some bank activities, provided another fruitful testing ground to show how increased competition in the banking sector may improve the efficiency of financial markets and contribute to a higher economic efficiency and growth.<sup>20</sup>

Of particular interest is the Schumpeterian hypothesis that finance fosters growth by stimulating “creative destruction”. The idea is that financial markets help to channel scarce capital from declining industries to firms, entrepreneurs and sectors with good growth prospects. Since capital is allocated to sectors that earn higher returns, financially developed economies converge faster to the efficient production frontier and experience higher

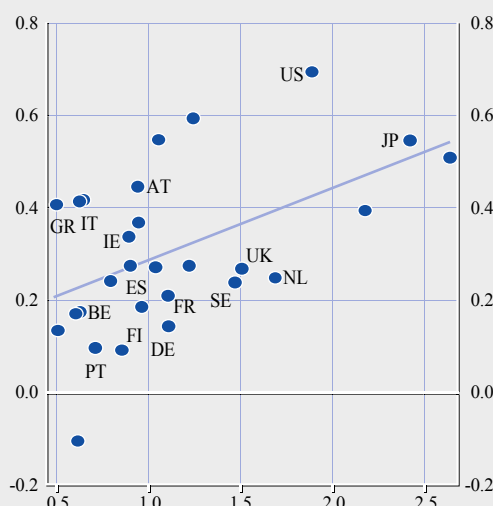
overall productivity growth. For example, the surge in productivity growth in the United States after the mid-1990s, which was mainly concentrated in sectors which are big users of information technology and research and development (R&D), can be attributed to the efficiency with which US financial markets channeled scarce capital to start-up firms in these growing industries. There is also evidence that more firms enter industries with large growth opportunities in countries with more developed financial markets.<sup>21</sup>

One way to test the Schumpeterian hypothesis is to examine whether industries with better growth prospects experience more investment in countries with more developed financial markets.<sup>22</sup> Using

- 15 R. King and R. Levine (1993), “Finance and Growth: Schumpeter Might Be Right”, *Quarterly Journal of Economics*, 108, pp. 717-738.
- 16 R. Levine and S. Zervos (1998), “Stock Markets, Banks, and Economic Growth”, *American Economic Review*, 88, pp. 559-586.
- 17 R. Levine, N. Loayza and T. Beck (2000), “Financial Intermediation and Growth: Causality and Causes”, *Journal of Monetary Economics*, 46, pp. 31-77; R. Levine, L. Norman and T. Beck (2000), “Finance and the Sources of Growth”, *Journal of Financial Economics*, 58, pp. 261-300; and J. Benhabib and M. Spiegel (2000), “The Role of Financial Development in Growth and Investment”, *Journal of Economic Growth*, 5, pp. 341-360.
- 18 See R.G. Rajan and L. Zingales (1998), “Financial Dependence and Growth”, *American Economic Review*, 88, pp. 559-586, for industry level evidence. A. Demircuc-Kunt and V. Maksimovic (1998), “Law, Finance, and Firm Growth”, *Journal of Finance*, 53, pp. 2107-2137, use firm level data to address the issue of possible measurement error when using industry level data.
- 19 R. Fisman and I. Love (2003), “Trade Credit, Financial Intermediary Development, and Industry Growth”, *Journal of Finance*, 58, pp. 353-374; R. Fisman and I. Love (2004), “Financial Development and Growth in the Short and Long Run”, NBER Working Paper 10236; P. Aghion, P. Howitt, and D. Mayer-Foulkes (2005), “The Effect of Financial Development on Convergence: Theory and Evidence”, *Quarterly Journal of Economics*, 120, pp. 173-222; G. Bekaert, C. Harvey, C. Lundblad and S. Siegel (2007), “Global Growth Opportunities and Market Integration”, *Journal of Finance*, 62, pp. 1081-1137.
- 20 P.E. Strahan (2003), op. cit.; and M. Bertrand, et al. (2007), op. cit.
- 21 T. Beck, A. Demircuc-Kunt, L. Laeven and R. Levine (2004), “Finance, Firm Size and Growth”, NBER Working Paper 10983.
- 22 J. Wurgler (2000), “Financial Markets and the Allocation of Capital”, *Journal of Financial Economics*, 58, pp. 187-214. The test is closely related to the q-theory of investment (J. Tobin (1969), “A General Equilibrium Approach to Monetary Theory”, *Journal of Money, Credit, and Banking*, 1, pp. 15-29).



**Chart 19 Elasticity of investment to growth opportunities and financial development in high-income countries**



Source: Hartmann, et al. (2007), op. cit.  
 Notes: The elasticity of investment to growth opportunities (y-axis) is estimated using international data on sectoral investment (gross fixed capital formation) and production (value-added) from the Industrial Statistics Database of the United Nations Industrial Development Organization (UNIDO). These data cover 28 manufacturing industries in 65 (non-socialist) economies during the period 1963-2003. See Hartmann et al. (2007), op. cit., for further details. Capital market size (x-axis) is defined as the sum of (i) private credit by deposit money banks and other financial institutions and (ii) stock market capitalisation as a share of GDP. Capital market size is averaged over the period 1980-1995. The high-income countries are 22 OECD countries (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, South Korea, the Netherlands, Norway, New Zealand, Portugal, South Korea, Spain, Sweden, the United Kingdom and the United States) plus Barbados, Cyprus, Hong Kong, Israel, Kuwait, Malta and Singapore. Only individual euro area countries, Switzerland, Sweden, the US, the UK and Japan are labelled in the chart.

this basic idea, Chart 19 provides evidence in favor of finance stimulating “creative destruction” in a group of high-income countries.

There is a positive relationship between a country’s financial development, measured by the size of capital markets, and the elasticity of investment to value-added across industries within a country.<sup>23</sup> Countries with larger capital markets tend to have industries in which investment is more sensitive to growth opportunities.

The next two sections of this Special Feature show indicators that measure the state of financial

development. First, there is a presentation of indicators that are of general nature and that cannot be linked to a single market segment of the financial sector. Then the Special Feature turns to indicators pertaining to the bond, equity and banking markets respectively.

#### 4 GENERAL INDICATORS

The finance and growth literature shows that the size of capital markets is a useful summary statistic of a country’s degree of financial development.<sup>24</sup> An important element of this finding is that both the size of domestic securities markets and the amount of bank lending to the non-bank private sector positively affect growth.<sup>25</sup> Chart 20 therefore shows a broad measure of the size of capital markets that aggregates the size of stock, bond and loan markets.<sup>26, 27</sup>

On average, euro area capital markets tend to be smaller than the capital markets in the United Kingdom and the United States, and they are roughly comparable in size to Japanese capital markets. Switzerland and Luxembourg have the largest capital markets relative to their economies. Within the euro area, the Netherlands and Ireland have the largest capital markets after Luxembourg. Some euro area countries with smaller financial sectors have

23 See P. Hartmann, et al. (2007), op. cit.

24 See for example R. King and R. Levine (1993), op. cit.; R. Levine and S. Zervos (1998), op. cit.; R. Rajan and L. Zingales (1998), op. cit.; P. Hartmann, F. Heider, E. Papaioannou and M. Lo Duca (2007), op. cit.; and E. Papaioannou (2007), op. cit.

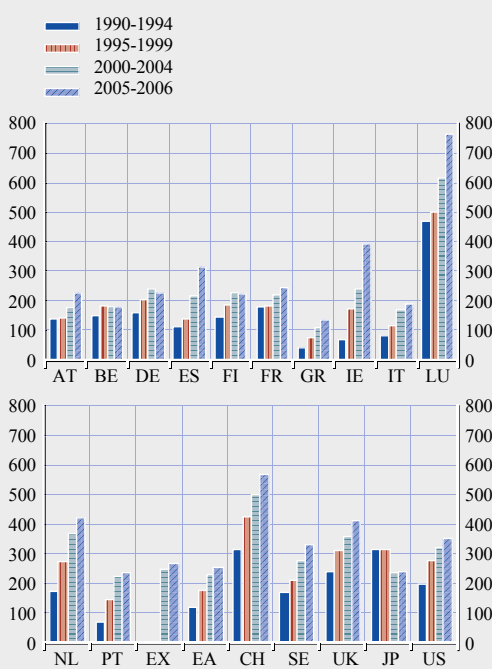
25 R. Levine (2002), “Bank-based or Market-based Financial Systems: Which Is Better?”, *Journal of Financial Intermediation*, 11, pp 1-30.

26 One should bear in mind that for bond markets, companies often set up foreign subsidiaries to take advantage of lower transaction costs and/or more favourable fiscal regimes.

27 For the purposes of this Special Feature, it was considered important to ensure comparability with countries outside Europe. Therefore, data for stock market capitalisation in the euro area and in individual euro area countries are taken from the World Federation of Stock Exchanges. For the same reason, GDP data have been sourced from the IMF. This implies some differences to the indicators constructed from more harmonised securities issues and GDP data for Europe as disseminated by the ECB and Eurostat, respectively.

Chart 20 Size of capital markets

(percent of GDP)



Sources: BIS, Datastream, ECB, Eurostat, IMF, World Federation of Exchanges and own calculations.

Notes: Sum of (i) stock market capitalisation, (ii) bank credit to the private sector and (iii) debt securities issued by the private sector divided by GDP. Euro area (EA) and Euronext countries (EX) figures are averages of EA and EX country data weighted by GDP. Stock Market capitalisation: BE, data start in 1991, calculated for 2005 and 2006. FI, calculated for 2005 and 2006. FR, data start in 1991, calculated for 2005 and 2006. NL, data start in 1995, calculated for 2002 to 2006. PT, data start in 1995, calculated for 2002 to 2006. SE, calculated for 2005 and 2006. Figures for JP include Tokyo Stock Exchange. Figures for US include AMEX, NYSE and NASDAQ. EA stock market capitalisation is the sum of the values for Euronext and for countries not included in Euronext. Bank credit to the private sector: loans granted to the domestic private sector. EA figures for bank credit are the sum of EA country figures and include cross border loans between EA countries. Debt securities issued by the private sector: For EA countries, data are from the SEC database. Data for GR, IE and LU start in 1992. BIS data are used for GR for the years 1992 to 1994. For IE, BIS data are used for the years 1992 to 2002 for financial institutions and for the years 1992 to 2006 for corporate issuers. For LU BIS data for the years 1992-2006 are used for corporate issuers. For non-EA countries, BIS data are used (sum of international and domestic amounts outstanding of bonds issued by corporate issuers and financial institutions).

experienced strong growth in their capital markets over the past 15 years. For example, they have more than doubled in Ireland, Portugal and Spain.

Turning now to the fundamentals of the financial system, the Special Feature presents indicators related to the legal and supervisory framework.

The reliability and efficiency of the legal system in dealing with financial contracts is important for the performance of financial systems. The inter-temporal nature of many financial contracts implies that investors relinquish control of their funds for a promise of future cash flows. The legal system makes sure that such contracts are honoured and that possible disputes among contracting parties are resolved.

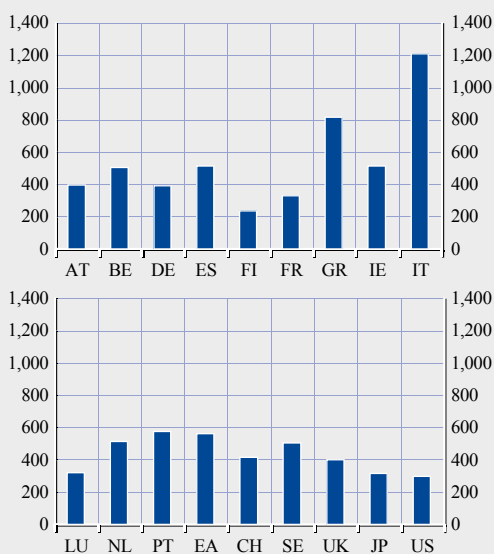
Ample evidence is available that laws affect the working of financial systems and influence economic efficiency. For example, in a country with an inefficient and slow legal system, financial contracts cannot be enforced effectively and creditors have more limited rights. Countries with well-defined and adequately enforced investor rights exhibit more entrepreneurship and greater product market competition. Moreover, they have more liquid private bond, venture capital and primary equity markets.<sup>28</sup> There is also evidence that sound investor protection rights and a fast-proceeding legal system stimulate cross-border mergers and acquisitions, foster syndicated lending and help to attract foreign capital.<sup>29</sup>

Chart 21 displays one of the measures of legal efficiency used in the literature called “duration of

- 28 S. Djankov, R. La Porta, F. López-de-Silanes and A. Shleifer (2003), “Courts: The Lex Mundi Project”, *Quarterly Journal of Economics*, 65, pp. 453-517; S. Djankov, R. La Porta, F. López-de-Silanes and A. Shleifer, “The Law and Economics of Self-dealing”, *Journal of Financial Economics* forthcoming; S. Djankov, C. McLiesh and A. Shleifer (2007), “Private Credit in 129 Countries”, *Journal of Financial Economics*, 84, pp. 299-329; R. La Porta, F. López-de-Silanes, A. Shleifer and R. Vishny (1997), “Legal Determinants of External Finance”, *Journal of Finance*, 52, pp. 1131-1150; R. La Porta, F. López-de-Silanes, A. Shleifer and R. Vishny (1998), “Law and Finance”, *Journal of Political Economy*, 106, pp. 1113-1155; R. La Porta, F. López-de-Silanes and A. Shleifer (2006), “What Works in Security Laws?”, *Journal of Finance*, 61, pp. 1-32.
- 29 L. Alfaro, S. Kalemli-Ozkan and V. Volosovych (2005), “Why Capital Doesn’t Flow from Rich to Poor Countries? An Empirical Investigation”, NBER Working Paper 11901; S. Rossi and P. Volpin (2004), “Cross Country Determinants of Merger and Acquisitions”, *Journal of Financial Economics*, 74, pp. 277-304; J. Quian and P. Strahan (2005), “How Law and Institutions Shape Financial Contracts: The Case of Bank Loans”, NBER Working Paper 11052; B. Esty and W. Megginson (2003), “Creditor Rights, Enforcement and Debt Ownership Structure: Evidence from the Global Syndicated Loan Market”, *Journal of Financial and Quantitative Analysis*, 38, pp. 37-59.

**Chart 21 Legal efficiency**

(number of calendar days)



Sources: World Bank: Doing Business 2008; Creating Jobs-Enforcing Contracts.

Notes: The total number of calendar days needed to enforce a commercial contract, i.e. the time between the moment the plaintiff files the lawsuit in court until payment. This is the sum of: (i) duration until completion of service of process; (ii) duration of trial; and (iii) duration of enforcement. The survey refers to a sale of goods; the value of the claim is 200% of the gross national income (GNI) per capita of the respondent country. Euro area (EA) figures are averages of EA country data weighted by GDP. Data refer to 2007.

enforcement”.<sup>30</sup> It indicates the speed with which commercial disputes are resolved in the courts, by counting the number of days it takes on average to resolve a simple commercial dispute.<sup>31</sup>

This particular legal process seems to be relatively slow in Italy, where it takes on average four years to resolve the financial dispute, and in Greece, where it takes about two years. The indicator may partly overstate the time of the legal dispute, as other, speedier, legal procedures may be available in some cases. Resolving simple commercial disputes is fastest in Finland, followed by a group of countries consisting of the United States, Japan, Luxembourg and France. This indicator suggests that the speed with which legal systems in the EU solve commercial disputes could be

increased in some European countries in order to generate further performance gains.

The banking sector is distinct from other sectors because of its greater potential for instability and the need to protect small and relatively uninformed depositors.<sup>32</sup> Banking regulations and supervisory practices are primarily aimed at ensuring the safety and soundness of banks with a view to safeguarding financial stability. A key element from a broader perspective is that financial regulation also considers financial and economic efficiency, given that ill-designed banking regulations and supervisory practices may also hamper financial development, e.g. by giving financial markets too much protection from competition or by imposing excessive administrative costs.<sup>33</sup>

An important complement to banking regulation and supervision is the private sector monitoring of banks, as it provides strong additional incentives for banks to conduct their business in a safe and efficient manner. Furthermore, effective market discipline has become increasingly important in view of the expansion of the market-based activities of banks and the growing regulatory reliance on the internal approaches for risk measurement and management used by banks. With a view to supporting effective private sector monitoring, regulators have significantly

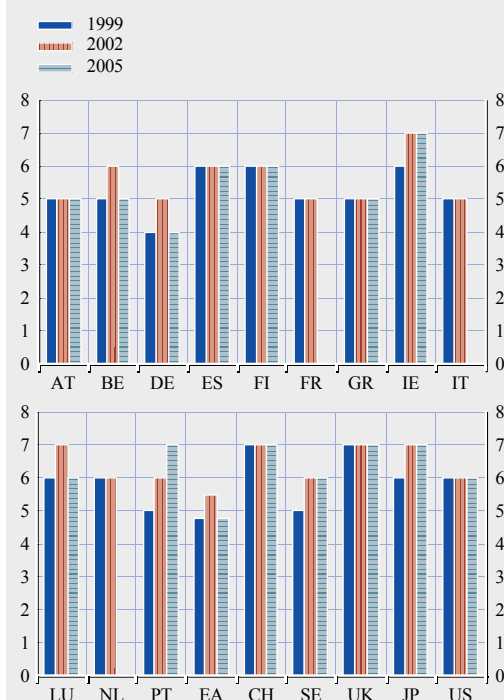
30 A legal system also supports the functioning of a financial system through the protection of property rights. As reported in P. Hartmann, A. Ferrando, F. Fritzer, F. Heider, B. Lauro and M. Lo Duca (2006), “The Performance of the European Financial System”, Mimeo, ECB, shareholder rights are well protected in and vary little across the euro area. A similar finding holds for a “law and order” indicator that assesses the observance of the law, its strength and impartiality.

31 See Djankov et al. (2003), op. cit.

32 M. Dewatripont and J. Tirole (1993), *The Prudential Regulation of Banks*, MIT Press, Cambridge, United States; C. Goodhart, P. Hartmann, D. Llewellyn, L. Rojas-Suarez and S. Weisbrod (1998), *Financial Regulation: Why, How and Where Now?*, Routledge, London.

33 See P.E. Strahan (2003), op. cit.; M. Bertrand, A. Schoar, and D. Thesmar (2007), op.cit.; L. Guiso, P. Sapienza, and L. Zingales (2005), “The Cost of Banking Regulation”, Working paper, Northwestern University; J. Barth, G. Caprio and R. Levine (2006), *Rethinking Bank Regulation: Till Angels Govern*, Cambridge University Press, New York.

**Chart 22 Bank regulations supporting market discipline**



Sources: World Bank and P. Hartmann et al. (2006), op. cit.

Notes: The index ranges from 0 to 8 and the higher the score the better market discipline is supported by regulations. The index combines information on the following categories: (1) external certified auditor required (yes=1, no=0); (2) No explicit deposit insurance scheme (yes=1, no=0); (3) comprehensiveness of bank accounting, sum of the values (yes=1, no=0) assigned to: (a) income statement containing accrued but unpaid interest/principal while loan is non-performing, (b) consolidated accounts covering bank and any non-bank financial subsidiaries required, and (c) directors legally liable for erroneous/misleading information; (4) off-balance-sheet items disclosed to public (yes=1, no=0); (5) banks disclose risk management procedures to the public (yes=1, no=0); and (6) subordinated debt allowable (required) as part of capital (yes=1, no=0). No 2005 updates for France (FR), Italy (IT), the Netherlands (NL). Euro area (EA) figures are averages of EA country data weighted by total assets of the banking sector. Due to data availability, 2005 figures are weighted by 2004 assets.

strengthened the public disclosure requirements for banks in recent years (for example with the provisions in pillar 3 of the new framework for capital standards of the Basel Committee on Banking Supervision and the corresponding EU Capital Requirements Directive (CRD)).<sup>34</sup> Some research shows that stronger incentives for the private monitoring of banks may lead for example to lower net interest margins and to fewer non-performing loans.<sup>35</sup>

Chart 22 presents a possible index of the extent to which banking regulations support effective market discipline.

The index aggregates several formal requirements aimed at enhancing market discipline, notably accounting and disclosure requirements. Based on this measure, all countries have a significant amount of regulation in place to support market discipline. In 2005 the regulatory environments in Ireland, Portugal, Switzerland, the United Kingdom and Japan were the most conducive to private monitoring.

## 5 MARKET-SPECIFIC INDICATORS

The principal role of financial innovation is to make markets more complete so that firms, households and governments can interact in financial markets with lower transaction costs and more risk sharing possibilities.<sup>36</sup> At times however, strong growth in new financial instruments may be associated with financial instabilities. But as the markets for financial innovations become more mature the benefits tend to be no longer impaired by such risks.

One example of a relatively mature financial innovation has been the development of derivatives. The use of derivatives enhances the allocation of capital and risk across time and space because issuers, dealers and investors can manage risks, lock in the future price of the

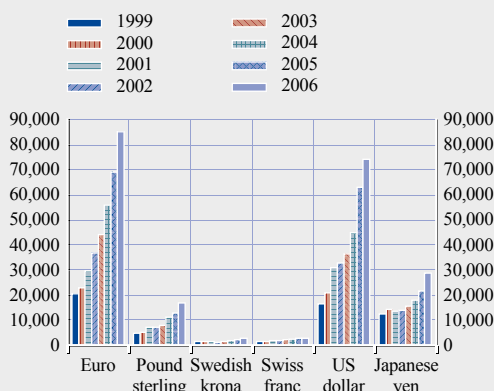
34 In addition, the introduction of the International Financial Reporting Standards (IFRS) in the EU is having a significant impact on enhancing market discipline for banks, although it is not specifically targeted at banks but at listed companies in general. Indeed, several important elements of the indicator on bank regulations supporting market discipline suggested below form part of IFRS (in particular as regards the comprehensiveness of bank accounting), rather than of specific banking regulations.

35 J. Barth, G. Caprio and R. Levine (2004), "Bank Regulation and Supervision: What Works Best?", *Journal of Financial Intermediation*, 13, pp. 205-248. Note that the indicator in Chart 22 is higher when there is no explicit deposit insurance scheme. However, the presence of such a scheme may be beneficial for financial stability.

36 F. Allen and D. Gale (1997), op. cit.; and D. Acemoglu and F. Zilibotti (1997), "Was Prometheus Unbound by Chance? Risk, Diversification and Growth", *Journal of Political Economy*, 105, pp. 709-751.

**Chart 23 Notional amounts outstanding of OTC single currency interest rate derivatives**

(EUR billions)



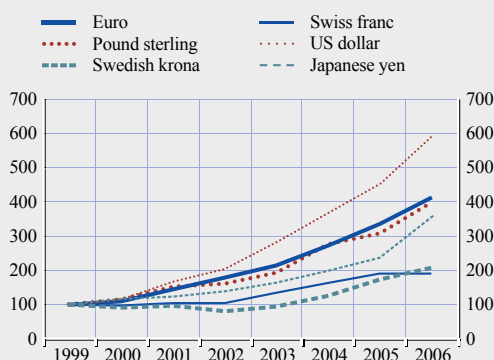
Sources: BIS and IMF.

Notes: Notional (or nominal) amounts outstanding are defined as the gross nominal value of all deals concluded and not yet settled at the reporting date. OTC single currency interest rates derivatives include forward rate agreements, swaps and options.

underlying assets and even alter the terms of the underlying financial contract. Chart 23 shows the amount of outstanding interest rate derivatives (forwards, options and swaps) by currency.<sup>37</sup> The most active markets are euro and US dollar interest rate derivatives with outstanding volumes of EUR 86 and 75 trillion respectively.

**Charts 24 Size of OTC single currency interest rate derivatives**

(at constant 1999 euro billions, 1999 = 100)



Sources: BIS, IMF and own calculations.

Notes: The index is constructed in the following way: (i) Amounts outstanding denominated in currencies other than the euro are expressed in euro by holding the exchange rate constant at the 1999 level; (ii) the level in 1999 is indexed at 100.

In order to better assess the evolution of the market for interest rate derivatives, Chart 24 normalises the amount outstanding across all currencies at 100 in 1999, fixes the exchange rate at the level in 1999 and then tracks the real growth rate. Interest rate derivatives in US dollars saw the highest growth, with the amount outstanding increasing by a factor of six. The second fastest growing markets are interest rate derivatives in euro and in pound sterling, which both quadrupled from 1999 to 2006.

A related area of financial innovation is securitisation. Securitisation allows for the transformation of formerly illiquid assets into portfolios of assets that can be sold widely. It can also be seen as an alternative financing tool for banks seeking to transfer the cost and risk of funding to other investors. The risks of the securitised assets can therefore be split, repackaged and sold to economic agents that are less vulnerable to funding liquidity shocks and aim to be remunerated for purchasing marketable but still relatively illiquid assets. Banks, for example, need to retain costly economic capital as a buffer against their risky lending activities. “True sales” of this risk via securitisation may allow them to reduce their holdings of costly capital in some circumstances and to reinvest freed-up resources in the economy. The price of a traded security that is backed by illiquid assets conveys information about them to the market that would not be available otherwise.<sup>38</sup> Despite these undoubted benefits of securitisation, there may also be some risks, especially when the market for a new financial instrument is still young. Some securitisation may then be motivated by regulatory or tax arbitrage, or by the desire to exploit a lack of transparency and sell overvalued securities, which could entail efficiency losses and pose risks to stability. Due to a lack of reliable, comprehensive and disaggregated data, and given that some forms of securitisation are relatively new and have only recently started to be analysed, it is difficult to make

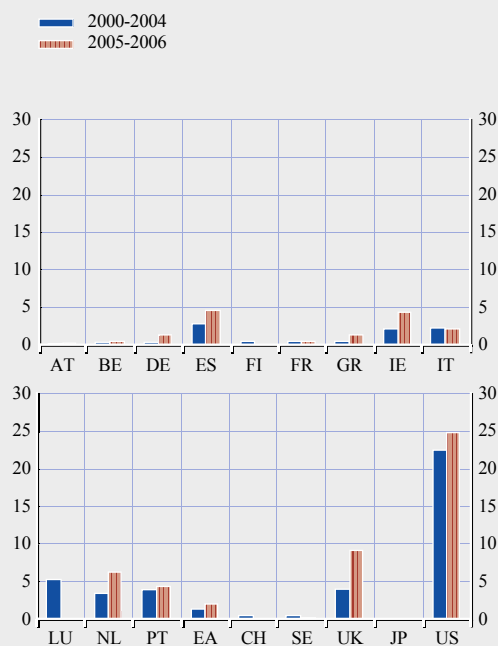
37 This indicator is not presented at the country level since the market for interest rate derivatives is a global one that cannot be linked to a specific geographic area.

38 P. DeMarzo (2005), “The Pooling and Tranching of Securities: A Model of Informed Intermediation”, *Review of Financial Studies*, 18, pp. 1-35.



Chart 25 Securitisation

(as percentage of GDP; by country of collateral)



Sources: European Securitisation Forum, Bond Market Association and Eurostat.

Notes: For European countries, data report the issuance placed in the Euromarket or in European domestic markets. For the United States (US), data refer to issuance placed in the US market and include issuance from government sponsored agencies. As there is no information about the country of collateral for US, it is assumed that US issuances have mainly domestic collateral. Data include asset-backed securities and mortgage-backed securities (auto loans, CMBS, RMBS, credit card receivables, leases, loans and other receivables), does not include CDOs and covered bonds. No data for Japan (JP). Latest data for Luxembourg (LU) and Switzerland (CH) are for 2003. Data for Finland (FI) available only for 2001 and 2003. Euro area (EA) figures are averages of EA country data weighted by GDP.

receivables such as auto loans or credit card loans is the United States with a volume of issuance of a quarter of GDP. Within the euro area, this kind of securitisation is greatest in Spain, the Netherlands, Luxemburg, Ireland and Portugal. On average, the euro area has a volume of issuance equivalent to 2% of GDP. More concretely, as the lack of integration in the European mortgage markets suggests, the ease with which issuers can include illiquid assets from any European country, irrespective of their own location, seems to be an important determinant of further securitisation. Obstacles to this may include financial regulations, consumer protection rules or aspects of taxation.<sup>40</sup>

European securitisation is, however, distinct in that in some countries there is a long-standing and very active market in covered bonds, which are similar to asset-backed securities. The main difference between covered bonds and asset/mortgage-backed securities is that the former are kept economically and legally on the balance sheet of the issuer who is typically a bank. Moreover, the buyer of covered bonds, besides receiving preferential treatment with respect to the cash flows of the underlying assets, is also eligible, together with the remaining bank creditors, for further payments.<sup>41</sup> Chart 26 shows the extent of securitisation via covered bonds relative to the amount of loans and bonds outstanding in a country.

a full assessment of how the benefits of different forms of securitisation (for example, cash versus synthetic securitisation) compare with open issues and risks.<sup>39</sup>

Chart 25 shows an example of a relatively mature form of financial innovation, i.e. the extent of off-balance sheet securitisation via asset-backed and mortgage-backed securities relative to gross domestic product (GDP), using the location of the collateral to link this financial innovation to countries.

According to this indicator, the most active market by far for securitising mortgages and

The chart shows that securitisation via covered bonds is substantial in Germany, Luxembourg, Ireland, Spain and Sweden. For example, the amount of covered bonds outstanding in

<sup>39</sup> For example, it is still too early to come to a verdict on and draw all the necessary conclusions from the turmoil caused by the problems in the sub-prime mortgage market. But it is important to note that the sub-prime market turmoil is associated with CDOs, i.e. a second layer of securitisation in which mortgage-backed securities are themselves repackaged into CDOs.

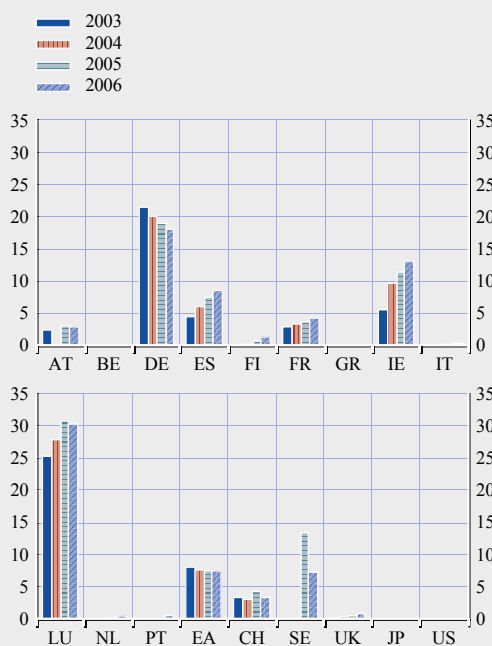
<sup>40</sup> See European Commission (2005), White Paper – Financial Services Policy 2005-2010, Brussels, December.

<sup>41</sup> Examples are German Pfandbriefe, Spanish cédulas and French obligations foncières. Covered bonds are not directly comparable across countries as their strong legal component is governed by different national legislations. At the moment there is no harmonized framework for covered bonds in Europe (see also Special Feature C in this Chapter).



**Chart 26 Covered Bonds outstanding**

(as a percentage of total bonds and loans outstanding)

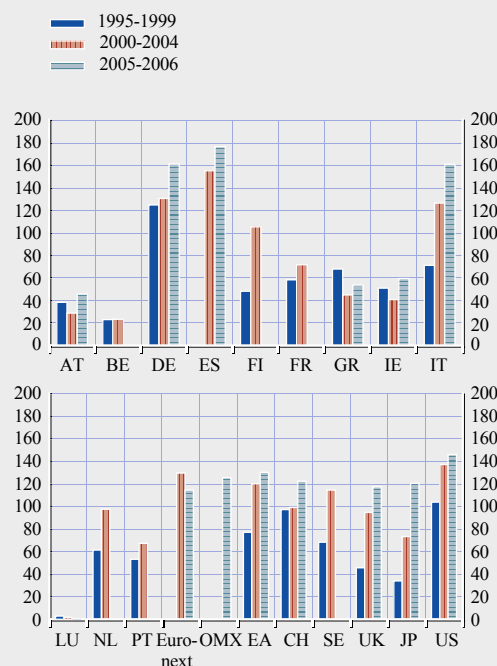


Sources: BIS, ECB, European Mortgage Federation and IMF.  
Notes: Amounts outstanding of covered bonds in percentage of the sum of (i) total bonds outstanding (public plus private) and (ii) total loans to the private sector. It includes public sector bonds, mortgage backed bonds and mixed bonds. Data for Belgium (BE), Greece (GR) or Japan (JP) are not available. Euro area (EA) figures are averages of EA country data weighted by the sum of total bonds outstanding and total loans.

Germany is one third of the amount of all loans and bonds outstanding (which represents an amount of outstanding covered bonds of nearly one half of GDP). Looking at Charts 25 and 26, it is apparent that securitisation takes different forms in different countries. The market for covered bonds is large in some of the countries in which the ABS/MBS market is small (e.g. in Germany, France or Sweden).

**Chart 27 Stock market turnover velocity**

(percentages of market capitalisation)



Source: World Federation of Exchanges.  
Notes: The turnover velocity is the ratio of the turnover of domestic shares to their market capitalisation. The turnover velocity is computed in the following way: (i) for each month, the ratio of the domestic share turnover to the domestic market capitalisation is computed; (ii) the ratio is annualised by multiplying by 12; (iii) the annual turnover is computed as the average monthly annualised turnover velocity computed in (ii). For the United States (US), turnover velocity is the average of the turnover for the NYSE and the NASDAQ, weighted by the respective market capitalisation. Data for Belgium (BE), France (FR) and the Netherlands (NL) end in 2000. Data for Portugal (PT) end in 2001. Data for Finland (FI) and Sweden (SE) end in 2004 and are part of the OMX thereafter. OMX includes Denmark, Estonia, Finland, Iceland, Lithuania, Latvia and Sweden. Data for Euronext start in 2001, for OMX in 2005 and for Spain in 2002. Euro area (EA) figures are averages of EA country data weighted by stock market capitalisation.

Turning to equity markets, Chart 27 shows one possible measure for assessing how well they function, i.e. the average annual amount of turnover of domestic shares on a stock market relative to the market capitalisation of these shares (the “turnover velocity”). A high volume of trading indicates a liquid market in which there are few frictions so funds can be channelled easily and in a timely manner across investors and capital-raising firms. The turnover velocity as a measure of liquidity has

been shown to be an important element of the positive link between financial development and economic growth since greater liquidity usually improves price discovery and lowers transaction costs.<sup>42</sup>

The chart shows that stock market trading activity varies considerably across the euro area. There is very active trading in Germany, Spain and Italy at a level which in recent years has even surpassed that in the United States, whose stock markets are traditionally seen as the most active. But there are also a number of euro area countries where stock markets are not very liquid. One can also see that the trading volume relative to market capitalisation on the Euronext stock exchange is larger than what was previously achieved on any stock market of its member countries. Furthermore, the turnover velocity has increased throughout the sample period in the most liquid stock markets, e.g. Germany and Italy, but it has shown uneven growth in less liquid markets such as the Austrian or Greek markets.

As many frictions in financial markets are due to asymmetric information between market participants, the production and dissemination of information is a crucial part of the well-functioning of a financial system. For example, public reporting by firms allows investors to make better investment decisions and alleviates the control problem between outsiders and management, and in turn lowers the cost of capital. The recent problems in US sub-prime lending and global structured finance also underline the importance of information in financial markets.

Another measure based on equity markets is the R-squared ( $R^2$ ) indicator. It assesses the information processing capacity of stock markets that is based on the synchronicity of firms' stock returns within a market. If firms' stock prices are mainly driven by market-wide factors and not by firm-specific news then they move together indicating that little valuable private information is revealed to or used by

investors. It has been shown that countries with a high synchronicity of stock returns tend to have less developed financial systems and lower per-capita GDP.<sup>43</sup> The synchronicity of stock returns has been associated in turn with the opaqueness of stock markets.<sup>44</sup> Firms whose stock prices move less due to market-wide factors often invest more efficiently. Moreover, stock prices appear to be a better predictor of future earnings if firms operate in industries with a low synchronicity of stock returns.<sup>45</sup>

The synchronicity of stock returns is calculated using the  $R^2$  statistic of a regression of stock returns on market-wide factors. A typical regression is:

$$r_{ijt} = \alpha_i + \beta_1 MK_{jt} + \beta_2 EA_t + \beta_3 US_t + \beta_4 EM_t + \varepsilon_{ijt}$$

where  $r_{ijt}$  is the weekly return on stock  $i$  in country  $j$  at time  $t$ ,  $MK_{jt}$  is the return on the stock market index in country  $j$  at time  $t$ ,  $EA_t$  is the return on a euro area stock market index at time  $t$ ,  $US_t$  is the return on the US stock market index at time  $t$  and  $EM_t$  is the return on an emerging markets index at time  $t$ . The independent variables capture systematic stock price movements across the most important market segments. Therefore the  $R^2$  statistic of the regression measures the amount of variation in stock returns that can be explained by market-wide or systematic information. The remainder,  $1-R^2$ , is the average amount of firm-specific information incorporated into stock prices.

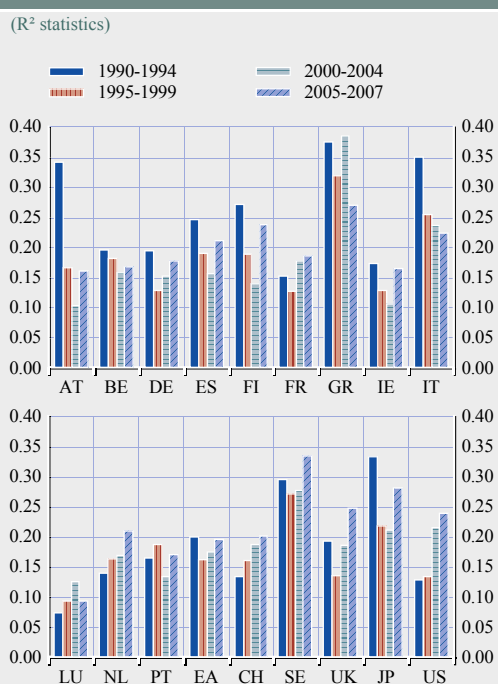
42 Levine and Zervos (1998), op. cit.

43 R. Morck, B. Yeung and W. Yu (2000), "The Information Content of Stock Markets: Why Do Emerging Markets Have Synchronous Stock Price Movements?", *Journal of Financial Economics*, 58, pp. 215-260. It is important to stress the cross-country dimension of this indicator as its time-series could also be caused by macro-economic fluctuations.

44 L. Jin and S.C. Myers (2006), "R<sup>2</sup> Around the World: New Theory and New Tests", *Journal of Financial Economics*, 79, pp. 257-292.

45 A. Durnev, R. Morck and B. Yeung (2004), "Value Enhancing capital Budgeting and Firm-specific Stock Returns Variation", *Journal of Finance*, 59, pp. 65-106; Durnev, A., R. Morck, B. Yeung and P. Zarowin (2003), "Does Greater Firm-Specific Return Variation Mean More or Less Informed Stock Pricing?", *Journal of Accounting Research*, 41, pp. 797-836.

**Chart 28 Pricing of firm-specific information in the stock market**



Sources: Datastream and ECB calculations.  
 Notes: Average R<sup>2</sup> statistics for each country are obtained by regressing firms' stock prices on market factors, i.e. the returns on domestic, euro area, US and emerging countries' stock market indices. Low bars indicate that stock prices reflect more firm-specific information. Euro area (EA) figures are averages of EA country R<sup>2</sup> statistics weighted by stock market capitalisation.

Chart 28 displays the R<sup>2</sup> statistic.<sup>46</sup> Higher bars indicate a greater role of market-wide factors in firms' stock prices, which is a sign of lower efficiency with respect to firm-specific information. The informational efficiency of stock markets in the euro area is comparable to the United Kingdom and the United States. Within the euro area, Greece, Italy and Sweden have stock markets that incorporate the least amount of firm-specific information into prices.

Turning from public to private equity markets, the next indicator of financial development considers the extent of venture capital financing. It is difficult for start-ups and small firms to raise capital. At the same time, small and medium-sized firms are an important element of an economy. Financing the activities of small and medium-sized enterprises

is crucial for fostering entrepreneurship, competition, innovation and growth in Europe. But the asymmetric information problems that create frictions in financial markets are particularly pronounced for these firms as they often have no access to public capital markets. Even bank financing may be difficult, as they are usually very risky and at the same time have little collateral to offer. Modern financial systems therefore provide significant private equity and venture capital financing. A venture capital investor acquires a significant equity stake in the firm, which provides the right incentive to monitor and control the firm. Venture capital financing is designed to overcome asymmetric information problems through its close relationship with firms.

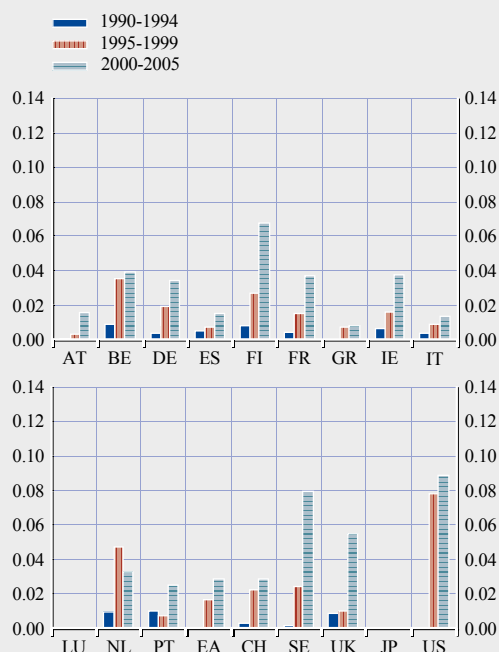
Chart 29 measures total venture capital financing (early-stage investment) as a share of GDP for the sample countries.

Despite having grown substantially over the past ten years, venture capital financing in most euro area countries remains only a fraction of venture capital financing in the United Kingdom or, especially, in the United States. While average euro area venture capital financing in the late 1990s was larger than in the United Kingdom, this is no longer the case. Within the euro area, only Finland has levels of venture capital financing that can rival those of the United States. Belgium, Germany, France, Ireland and the Netherlands have comparable amounts of venture capital financing. The indicator shows low levels of early-stage venture capital financing in Austria, Greece,

<sup>46</sup> It has been estimated on weekly returns for all the companies included in each country's DataStream Total Market Index on 31 December 2004. The sample covers 4,051 stocks listed in the countries studied. All the returns are in local currency and returns on foreign factors are converted into local currency. Regarding common factors, the Datastream total market index for the euro area, the S&P100 for the United States, and the MSCI index for emerging markets have been used. Firms that do not have 30 weekly observations are excluded. As in Durnev et al. (2003), op cit., initial public offerings (IPOs) are excluded since they are unusual information events and weekly returns are used because they are less likely to be affected by thin trading problems. For the returns of the stock price of each company, the factor regression is estimated per year and pseudo R<sup>2</sup> is computed. Country averages of R<sup>2</sup> are then computed and compared. All the computations have been made with E-views 5.

**Chart 29 Venture capital financing (early-stage investment)**

(as a percentage of GDP, by country of management)

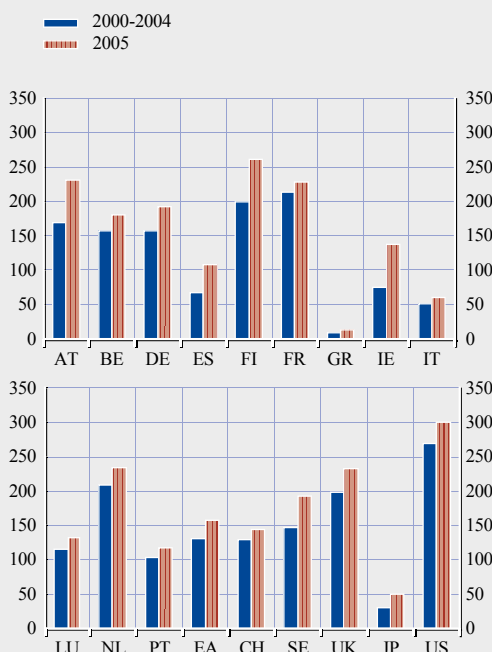


Sources: European Private Equity and Venture Capital Association, PricewaterhouseCoopers and Eurostat.

Notes: Venture capital early-stage investment is defined as private equity raised for seed and start-up financing. The data report investment by venture capital firms according to their country of residence. Data for Luxembourg (LU) and Japan (JP) are not available. Data for Germany (DE) start in 1993, for Greece (GR) and the United States (US) in 1995. Euro area (EA) figures are averages of EA country data weighted by GDP.

**Chart 30 Number of cashless transactions**

(per capita)



Sources: ECB and BIS.

Notes: The number of cashless transactions represents the number of cashless payment transactions per capita by non-MFIs including credit transfers, direct debits, card payments, cheques and e-money payment transactions. Data for Austria (AT) and Luxembourg (LU) start in 2001.

Italy and Spain.<sup>47</sup> The indicator is however silent on whether the apparent weakness of the European venture capital sector is caused by a lack of capital supplied, a lack of liquidity in still somewhat nationally segmented venture capital markets, a lack of demand from entrepreneurs or a shortage of exit options for venture capitalists through liquid equity markets.

Another indicator of financial development that this Special Feature presents is a measure of financial innovation in the retail banking sector. Chart 30 shows the number of cashless transactions (e.g. credit transfers, direct debit, card payments, cheques and e-money payments) across countries.

Like other financial innovations, such transactions make financial markets more complete, allow transaction costs to be low and, most importantly, facilitate the exchange of goods and services. Cashless payments support the efficient functioning of markets more than bilateral cash payments and make use of the strong network effects and economies of scale in payment systems.

Cashless payments per capita have risen in all countries over time. There are twice as many such payments per capita in the United States than in the euro area. Within the euro area, the Austrians,

<sup>47</sup> The results are quite similar if venture capital that finances later stage replacements and venture capital by country of destination are taken into consideration (see Hartmann et al. (2006), op cit.).

Finns and Dutch are the most frequent users of cashless payments, while the Spanish, Italians and, in particular, Greeks use them least frequently.

## 6 CONCLUSIONS

This Special Feature presents a number of quantitative indicators that measure the degree of financial development in the euro area and some reference countries. Financial development is a process through which financial market framework conditions translate into financial and economic efficiency. While financial development and financial integration are similar as both of them affect efficiency, 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. The aim of providing indicators of financial development is to enable the assessment of the functioning of financial systems and the monitoring of potential obstacles to the efficient and smooth allocation of capital from a broad perspective.

It is important to bear in mind that this Special Feature only presents a selection of possible indicators of financial development.<sup>48</sup> Consequently, not all aspects of European financial systems are fully captured by the indicators presented here. Moreover, publicly available data may not capture issues that can only be identified by those individuals that are active in financial markets. 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.

The selection of indicators presented here shows that there is a fair amount of heterogeneity in financial system performance across euro area countries. Relative to the group of benchmark countries, on average the euro area financial system compares well, except perhaps relative

to the United Kingdom and the United States, which perform better across most of the indicators presented here. These results suggest that there appears to be further scope for structural reforms of financial sectors in the euro area and that against this background looking at financial development in addition to financial integration is a fruitful avenue to take.

48 For a more complete list see Hartmann et al. (2006), op.cit. and Hartmann et al. (2007), op.cit.

## B. THE STEP INITIATIVE

*One of the ways in which the ECB and the Eurosystem can foster the integration in the euro financial system is by acting as a catalyst for private sector initiatives, as further illustrated in Chapter III of this report. A prominent example of this kind of activity was the promotion of the development of a pan-European short-term paper market via the market-led Short-Term European Paper (STEP) initiative and the continued operational support for this project. This Special Feature provides an overview of the STEP initiative, takes stock of its main achievements and remaining challenges, and describes how the catalytic role of the ECB and the Eurosystem contributed to the success of this important project.*

## I INTRODUCTION

The short-term securities market has been the component of the money market in the EU in which the least progress towards integration has been achieved since the launch of the euro in 1999. Indeed, the market for European commercial paper (CP) and certificates of deposit (CD) has remained fragmented. The STEP initiative was aimed at addressing this gap in financial integration by developing a pan-European short-term paper market through the voluntary compliance of market participants with a core set of commonly agreed standards. After several years of preparatory work, this initiative went live in June 2006, when the STEP Market Convention was signed. Since then, the STEP initiative has shown its benefits in enhancing market transparency and fostering convergence of market standards and practices through the compliance of market participants with the STEP Market Convention.

The Eurosystem acted as a catalyst for the STEP initiative in a number of respects, including (i) drawing the attention of market participants to the opportunity to enhance integration in this market by means of self-regulatory action, (ii) assisting, with observer status, in the

setting up of the STEP Market Convention, (iii) helping to reconcile the views of different agents potentially interested in the project, and (iv) helping to make the project known to financial players and the public at large. Furthermore, the Eurosystem's catalytic role in the development of STEP has been complemented with continued operational support for the project since its launch: some NCBs will be providing technical support for the labelling process until June 2008, and the ECB produces daily statistics on yields and volumes relating to this new market.

The Special Feature is organised as follows. Section 2 introduces the business case for this market-led initiative, elaborating on the need to further integrate the short-term European paper market and describing the approach followed by market participants with the support of the ECB. Sections 3 and 4 describe the preparatory phase of STEP and the launch of STEP in terms of its legal, institutional and statistical frameworks. Section 5 reviews market developments since STEP commenced operations in June 2006, while Section 6 looks at related developments, such as the acceptance of STEP as a "non-regulated" market for collateral purposes in Eurosystem credit operations. Section 7 assesses future opportunities and challenges for STEP and Section 8 concludes.

## 2 NEED FOR AND APPROACH TO FURTHER INTEGRATION OF THE SHORT-TERM EUROPEAN PAPER MARKET

### THE MONEY MARKET AFTER THE INTRODUCTION OF THE EURO

The introduction of the euro led very quickly to the creation of a large, liquid and integrated money market across the euro area, particularly in the unsecured and derivatives segments. While the euro area repurchase agreement market initially took a while longer to achieve the same degree of integration, it has eventually even surpassed the unsecured segment in importance.<sup>49</sup>

<sup>49</sup> See also Chapter I and the financial integration indicators for money markets set out in the statistical annex.



By contrast, the integration among the various segments of the market for short-term securities (i.e. CPs, which are generally issued by corporates and securitisation special purposes vehicles (SPVs) and CDs, which are issued by banks) was seriously lagging behind. This assessment was shared both by the ECB and by the commercial banks represented in the ECB's Money Market Contact Group, a forum in which information on issues of common interest is exchanged.

#### THE STEP INITIATIVE<sup>50</sup>

In 2001, with a view to addressing the observed gap in financial integration, the ECB drew the attention of the ACI (The Financial Market Association)<sup>51</sup> to the opportunity for taking collective market action to improve this situation. In response, the ACI created the Euribor ACI STEP Task Force ("the STEP Task Force") with the mandate to identify measures that could enhance the development and the integration of CP and CD markets in Europe.

The basic idea of the STEP initiative was to foster the integration of the different European market segments for short-term securities through the convergence of market standards. With a view to this objective, the STEP initiative was aimed at (i) identifying a set of common market standards and practices capable of promoting market integration and (ii) fostering the voluntary compliance of market participants with these standards and practices by granting a STEP label to compliant issuance programmes. During the long preparatory phase, market participants (with the assistance of the ECB which participated as an observer) defined, agreed, and codified these common standards in the STEP Market Convention.

The promoters of the STEP initiative were motivated by the expectation that convergence of market standards would stimulate significant progress in the integration of short-term securities markets, thereby enhancing the depth and liquidity of these markets. As a result, the

diversification opportunities for issuers and investors would increase.

However, the promoters also acknowledged that not all sources of the existing market segmentation – in particular those stemming from legislative, regulatory and supervisory factors – could be addressed by the STEP initiative.

#### A MARKET-LED APPROACH

Market participants agreed to pursue a self-regulatory approach based on commonly agreed standards for two reasons. First, they considered that such an approach did indeed have great potential to improve the state of integration of the CP market. Second, they were of the opinion that while regulatory or fiscal measures could have useful additional effects, they would not reduce the necessity for more convergent market standards and practices. As a consequence, the STEP standards were not aimed at substituting or changing existing national regulations, but were designed to complement them.

Another option considered in the early stages of STEP was the creation of a new European market that would be an alternative to the existing markets, but this was discarded. The selected option, by contrast, requires issuers to add the STEP standards to their issuance programmes (for issuance in, for example, the international Euro CP (ECP)<sup>52</sup> market, the French domestic CP and CD market, and the Spanish domestic CP market). Consequently, an issuer cannot create a STEP issuance programme as such, but he can add the STEP standards to a national issuance programme which would then be granted the STEP label.

<sup>50</sup> See for further reference <http://www.stepmarket.org/index.html>.

<sup>51</sup> ACI is a global association of wholesale financial market professionals aimed at contributing to market development through initiatives in the field of education, market practices, technical advice and networking events. For further information, see <http://www.aciforex.com/>

<sup>52</sup> Traditionally, and already before the introduction of the euro, the prefix "Euro" for CP or CD signals that the short-term securities are issued outside a given country but are denominated in that country's currency.

In this sense, the existing European markets could be seen as the “underlying markets” with respect to the STEP market.

### THE STEP LABEL

The STEP label is granted at the request of the issuer putting forward an existing or a new issuance programme that meets the STEP standards. Credit institutions, non-financial corporations, financial intermediaries other than credit institutions (including securitisation SPVs) and public authorities are all entitled to apply for the STEP label for their issuance programmes.

The STEP label does not refer to the financial soundness of the issuer, the liquidity of the assets or the accuracy of information provided in the underlying STEP information memorandum. The STEP label only certifies that the issue complies with the STEP standards, which cover disclosure, documentation, settlement and the provision of data and are set out in detail in the STEP Market Convention.<sup>53</sup>

All papers traded on short-term securities markets may be awarded the STEP label, provided that (i) the programmes under which these papers are issued comply with the standards set out in the STEP Market Convention and (ii) the relevant security settlement systems are eligible for STEP.

### INVOLVEMENT OF EUROPEAN MONEY MARKET PARTICIPANTS

The STEP Task Force was mainly composed of dealers and arrangers active in all of the main segments of the European CP and CD markets, including the domestic segments and the international ECP segment. Moreover, the STEP Task Force included members of the issuer and investor community as well as representatives of other market associations (e.g. the International Primary Market Association – IPMA). The STEP Task Force established a constructive dialogue with other relevant parties, such as securities settlement systems and public

authorities. Moreover, the ACI invited the ECB to support the STEP initiative and the ECB accepted this invitation.

The European Financial Markets Lawyers Group (the EFMLG)<sup>54</sup> also contributed in the early stages by providing assistance to the ACI with regard to certain legal aspects.<sup>55</sup>

### THE CATALYTIC ROLE OF THE EUROSISTEM

As described in more detail in Chapter III, the Eurosystem supports financial integration processes in four main ways, namely by (i) giving advice on financial legislation and regulation, (ii) acting as a catalyst to facilitate collective action by the private sector, (iii) enhancing knowledge, raising awareness and monitoring the state of European financial integration, and (iv) providing central bank services that contribute to fostering European financial integration.

As part of its catalytic function, the Eurosystem contributed to the preparatory phase of the STEP initiative by facilitating and supporting coordination among market players and actively contributing to the work of the STEP Task Force, notably by acting as a neutral broker between the different stakeholders. In 2002 the ECB also hosted a public consultation on the STEP Task Force’s initial set of proposals at the request and on behalf of the ACI. This catalytic

<sup>53</sup> See in particular Chapter 1 and Annex 4 of the STEP Market Convention at [http://www.stepmarket.org/documents/STEP\\_market\\_convention.pdf](http://www.stepmarket.org/documents/STEP_market_convention.pdf).

<sup>54</sup> The EFMLG was established in 1999 to discuss and promote initiatives leading to greater harmonisation of European financial market activities (laws and market practices) following the introduction of the euro. The EFMLG is composed of senior lawyers from credit institutions based in the EU and selected on the basis of their personal expertise. For further information see <http://www.efmlg.org/>.

<sup>55</sup> See the 2002 EFMLG Report on the Money Market: Legal Aspects of Short-term Securities and Up-date 2003 EFMLG Report (<http://www.efmlg.org/>) and the ACI-EFMLG Report on the Information Memorandum for Short-Term European Paper (STEP) (2004), available on the ACI website (<http://www.aciforex.com/euribor/paper.cfm/sector/4/StepWorkingGroup.html>). The report is dated 15 December 2003 and was made public in March 2004.

role followed naturally from the Eurosystem's institutional characteristics as a public authority with a pan-European remit and, in its capacity as the euro area's central bank, as an active market participant with the knowledge that it entails.

### 3 THE PREPARATORY PHASE

Following the public consultation on the initial set of proposals mentioned above, the STEP Task Force set out its recommendations in a report published in March 2004.<sup>56</sup> The ACI confirmed the objective of the convergence of standards through the compliance of market players with the STEP Market Convention, covering disclosure, documentation, settlement and the provision of data. The report also included some recommendations addressed to the ESCB.

#### SUPPORT FROM THE EUROSISTEM

The Governing Council of the ECB closely followed the preparatory phase of the STEP initiative.

In 2004 the Governing Council assessed the ACI's recommendations and took an overall favourable attitude towards them. In April 2006 the Governing Council gave its final approval to the Eurosystem's involvement in the STEP market. More specifically, in line with the recommendations addressed by the ACI to the Eurosystem, the Governing Council decided that, under certain conditions, the Eurosystem would support the activities pertaining to the introduction of the STEP label during the first two years after its launch. Nevertheless, the entire responsibility for the granting and withdrawal of the STEP label would rest with the STEP Secretariat, as explained in Section 4 of this Special Feature. Furthermore, the Governing Council agreed that the ECB would produce and publish comprehensive statistics on yields and volumes, subject to a check regarding the efficiency of the collection process.

### BROADENING THE LIST OF PARTNERS

Since May 2005 the European Banking Federation (EBF) has supported ACI in the STEP initiative, in line with previous joint projects (e.g. the EURIBOR<sup>57</sup> and EONIA<sup>58</sup> indices). The following section provides further information on the EBF's contribution to the functioning of the STEP market.

### 4 THE LAUNCH OF STEP

#### THE STEP LEGAL FRAMEWORK

In April 2006 Euribor EBF and Euribor ACI, two international associations under Belgian law, adopted the amended version of their Statutes, which now include references to STEP-related tasks and responsibilities.

On 9 June 2006 Euribor ACI and Euribor EBF signed the STEP Market Convention.<sup>59</sup>

#### THE STEP INSTITUTIONAL FRAMEWORK

The STEP Market Convention includes the Code of Conduct of the STEP Market Committee, which is a joint steering committee of Euribor ACI and Euribor EBF and is responsible for the establishment, interpretation and possible revision of the standards on which the STEP label is based. The chairman of the Committee is the Secretary General of Euribor EBF.

With the signing of the Convention, the STEP Secretariat has been created under the joint responsibility of Euribor ACI and Euribor EBF.

<sup>56</sup> See the ACI-EFMLG Report on the Information Memorandum for Short-Term European Paper (STEP) (2004).

<sup>57</sup> Euro interbank offered rate.

<sup>58</sup> Euro overnight index average.

<sup>59</sup> See [http://www.stepmarket.org/documents/STEPmarket\\_convention.pdf](http://www.stepmarket.org/documents/STEPmarket_convention.pdf).

The STEP Secretariat is responsible for the day-to-day management of the STEP label and is located at the premises of Euribor EBF in Brussels.

More specifically, the main functions of the STEP Secretariat are the following: to grant, withhold or withdraw the STEP label on the basis of the criteria and requirements of the STEP Market Convention; to make available the electronic format of the information memoranda of STEP-labelled programmes and related information on the STEP website; to provide certain data to the ECB and the eligible data providers to produce STEP statistics; to act as the secretariat to the STEP Market Committee; and to administer the STEP Market website.

#### SUPPORT FROM THE EUROSISTEM

In order to make the project known to financial players and the public at large, on 11 July 2006 the President of the ECB, together with the Presidents of the EBF and of ACI, held a press conference to mark the official launch of the STEP market.

Since then, and in line with the decisions of the Governing Council mentioned above, the Eurosystem's contribution to the STEP market has focused on two activities.

First, the ECB and nine euro area NCBs<sup>60</sup> are providing technical assistance to the STEP Secretariat in the STEP labelling process, although, as mentioned above, the ultimate responsibility for granting and withdrawing the STEP label rests with the STEP Secretariat. The task currently performed by the central banks is planned to be taken over by the STEP Secretariat at the end of June 2008.

Second, the ECB produces comprehensive statistics on yields and volumes for the STEP market on a permanent basis and regularly publishes them on the ECB website.

#### THE STEP STATISTICAL FRAMEWORK

The obligation for issuers to accept pre-defined disclosure requirements and further arrangements on the statistics compiled and published by the ECB are the key elements of the STEP Market Convention. These arrangements, described in particular in Article 1.12 and Annex 6 of the STEP Market Convention, ensure market transparency regarding issuance activity on both an aggregated level and as regards individual programmes.

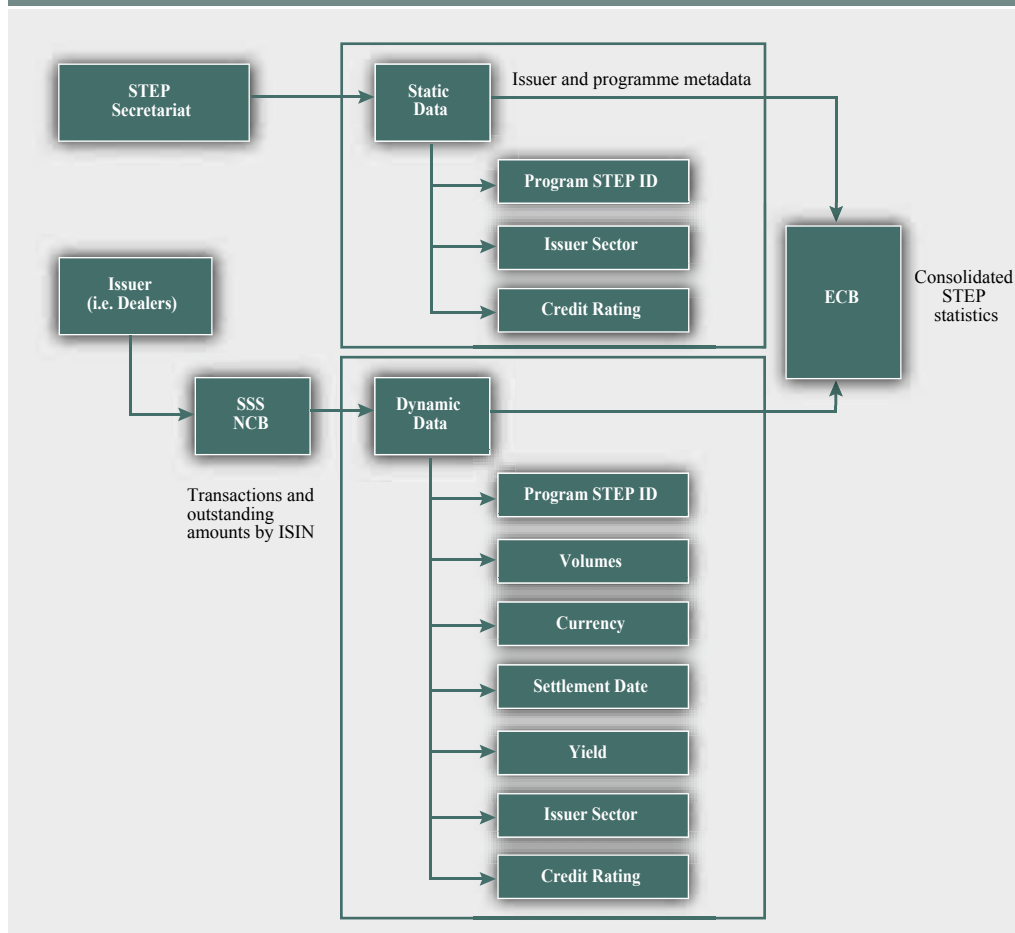
In particular, issuers are required to make all necessary arrangements with the eligible data providers to deliver complete and accurate data to the ECB. To make the most efficient use of existing information and to minimise the reporting burden, the types of eligible data providers differ from country to country. These data providers, who will report security-by-security and transaction-by-transaction information for each STEP programme to the ECB, may be security settlement systems, NCBs or other entities which comply with both the eligibility criteria set out in Annex 6 of the STEP Market Convention and with the ECB reporting instructions.

As illustrated in Chart 31, the ECB reconciles the information it receives from the STEP Secretariat regarding the STEP programme and the issuer (so-called static data) and the information on related transactions and securities (so-called dynamic data) from its eligible data providers.

The reporting requirements were established by the ECB together with the NCBs and eligible data providers, taking into consideration the initial proposals of STEP participants. These proposals were streamlined as part of the above-mentioned efficiency check required by the Governing Council, which helped to reduce costs. At the

<sup>60</sup> Banque Nationale de Belgique, Deutsche Bundesbank, Banco de España, Banque de France, Central Bank and Financial Services Authority of Ireland, Banca d'Italia, De Nederlandsche Bank, Banco de Portugal, Suomen Pankki.

Chart 3I Compilation of STEP statistics



Source: ECB.

same time, the publication frequency for some breakdowns now goes beyond the original plans, as the related marginal costs to data providers turned out to be negligible.

Since September 2006 the ECB publishes total outstanding amounts on a monthly basis. Since 2 April 2007 the ECB also publishes daily yield statistics, currently based on data concerning French programmes.<sup>61</sup> The yield statistics already comprise aggregate data on discount paper issued under STEP-labelled programmes broken down by issuer sector, rating and maturity. Yield spreads above benchmark rates, in particular EONIA, are also available. Yields

of individual transactions and issuers are treated confidentially. In line with a clarification of the STEP Market Committee, specific yield information is only released for aggregate transactions from at least three issuers.

Moreover, the ECB is about to release for the first time the outstanding amounts for each STEP programme. This information, complemented with a currency breakdown, will further enhance transparency for investors and

61 While the relative share of French programmes has decreased, they constitute the bulk of the STEP labelled outstanding amount and are thus representative of the market for the purpose of calculating yield curves. See also the next paragraph.

allow them to easily access the information that is useful for the monitoring of exposures to their counterparties. While this is already helpful under normal market conditions, the relevance of this information increases under more turbulent conditions, such as those witnessed during the summer of 2007.

The complete foreseen set of STEP statistics includes volumes, i.e. stocks and flows, and yields for euro-denominated issues. In addition to the already published data on aggregate volume statistics, i.e. outstanding amounts, it is envisaged to publish more detailed information on the ECB website on a daily basis in the near future. The new data will contain aggregate outstanding amounts and new issues broken down by maturity, credit rating categories and issuer sector. A currency breakdown for outstanding amounts will also be made available.

As regards the STEP yields, data from all remaining data providers will be added.

The ECB is technically in a position to provide all the aforementioned statistics. A gradual phasing-in of the data provision to the ECB has

been planned, which should lead to a full regular release by the end of 2008.<sup>62</sup>

## 5 THE OUTCOME TO DATE

This section provides an overview of the developments since the signing of the STEP Market Convention in June 2006.

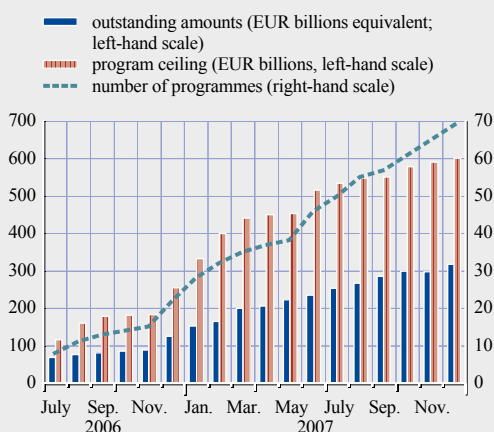
### MARKET DEVELOPMENTS

Chart 32 shows that in July 2006, only one month after the adoption of the Convention, eight programmes had been granted the STEP label. Taken together, these programmes accounted for an outstanding volume in all currencies of more than €70 billion. By December 2007, the volume had risen to €320 billion.

The relevance of the STEP Market is illustrated by the fact that the outstanding amount of euro-denominated STEP-labelled securities already accounts for about 30% of all euro-denominated short-term paper placed by non-government issuers worldwide (see Chart 33).

62 STEP statistics are available on: <http://www.ecb.europa.eu/stats/money/step/html/index.en.html>

**Chart 32 STEP monthly outstanding amounts, programme ceilings and number of programmes**

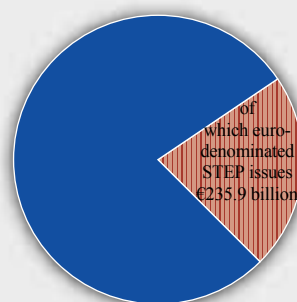


Sources: ECB, STEP Secretariat, ECB calculations.

**Chart 33 Outstanding amount of euro-denominated STEP and worldwide euro-denominated non-government short-term paper, September 2007**

(EUR billions)

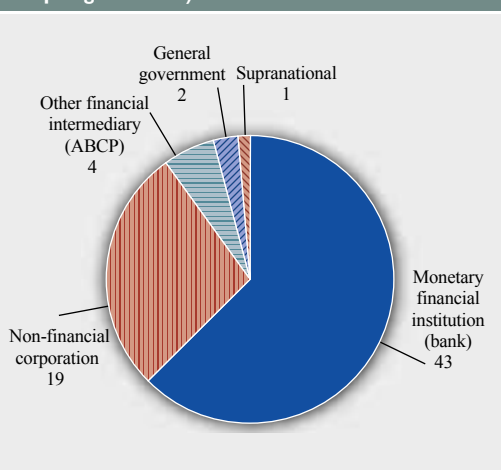
euro-denominated non-government short-term debt securities issued world-wide  
€842.0 billion



Source: ECB.



**Chart 34 Distribution of STEP programmes by issuer sector (number of programmes)**



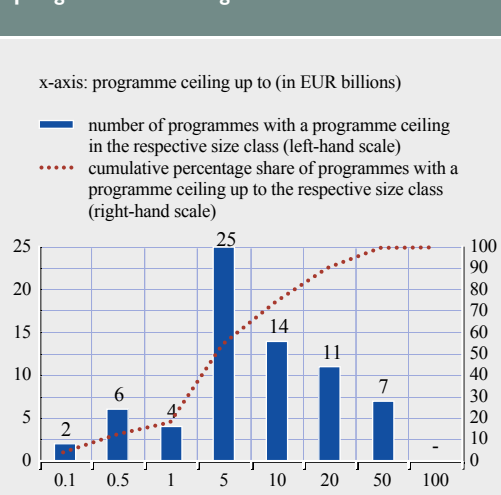
Source: ECB.

The most important types of issuers are currently MFIs, in particular credit institutions (see Chart 34), which have issued 43 out of 69 programmes. Second in importance are non-financial corporations, in particular the treasury arms of large corporate issuers, followed by financial intermediaries other than MFIs, in particular SPVs issuing asset-backed commercial paper (ABCP).

The generally high programme ceilings reported in Charts 32 and 35, i.e. the amounts that the issuers of each programme undertake not to exceed, reflect the fact that the STEP standards are relatively recent. Not surprisingly, large issuers are typically the first to adopt new standards and practices because they are better equipped to follow and adopt financial innovation and to act as leaders. This initial bias towards big players, which is expected to diminish over time, appears even more evident when looking at the distribution of the programmes by programme ceiling size (see Chart 35). For the “underlying markets” (i.e. all markets in which the STEP standards can be potentially adopted) the share of smaller programme ceilings is much higher.<sup>63</sup>

Currently, the markets which could potentially make most recourse to the STEP label are, in particular, the French market for negotiable debt

**Chart 35 Distribution of STEP programme ceiling sizes**

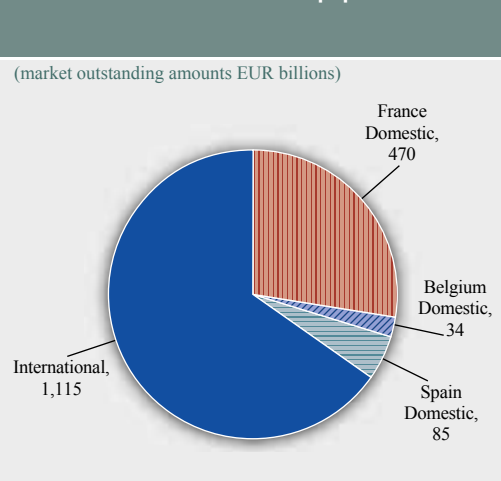


Source: ECB.

instruments, “titres de créances négociables” (TCNs), on which non-domestic issuers are also active, the Spanish market for “pagarés de empresa” (CPs), and the German, Finnish, Italian, and Belgian CP markets. An overview of the respective market sizes is contained in Chart 36, which clearly illustrates the importance of the largely London-based international market (ECP, ECD) and the French domestic market.

<sup>63</sup> For example, in the ECP market, some 80% of the programmes have a ceiling of USD 1 billion or lower.

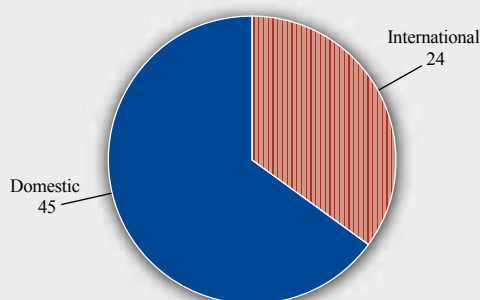
**Chart 36 Size of short-term paper markets**



Sources: NCBs, Dealogic, ECB calculations.

Note: Non-resident issuers also can issue short-term paper on so-called domestic markets.

**Chart 37 Distribution of STEP label among underlying markets (number of programmes)**



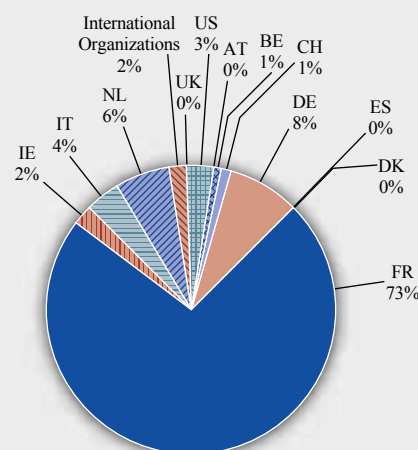
Source: ECB.

Most of the STEP labelled programmes (35 out of 69) are in the legal form of TCN and, to a lesser extent, ECPs (24). However, as can be inferred from Chart 37, the international market segment is not yet represented as much as its market share in Chart 36 would imply. The STEP Market Committee is currently studying some measures to further develop the STEP label so as to also provide further incentives to the ECP market (see below).

Concerning other “underlying” CP markets, some aspects may be worth mentioning. In some countries, unfavourable tax regimes, the lack of an adequate platform or established market place, or a relatively old legal framework (e.g. minimum issuance amounts or language obstacles that sometimes conflict with STEP requirements) may not provide the necessary incentives for issuers. Generally, these frameworks tend to slightly favour longer-term funding. In many countries, with the clear exception of France, the limited activity of money market funds does not act in favour of the development of a market for short-term securities.

Once these points have been addressed, the place of establishment of the issuers of STEP-labelled paper may also be distributed more in line with

**Chart 38 Distribution of STEP label by residency of ultimate issuer**



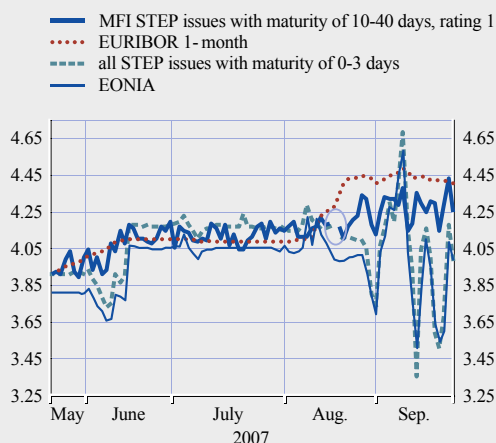
Source: ECB.

the underlying issuance of short-term paper than the current data (see Chart 38) suggest.

As regards yield developments, the STEP market was also influenced by the financial market

**Chart 39 STEP yields and related market indices**

(percentage points)



Source: ECB.

Note: The blue circle indicates that on the given day fewer than three issuers issued STEP papers for the respective maturity, issuer sector and rating breakdown. The observation was therefore suppressed.

turbulences which started impacting CP markets (including the ABCP market) in August 2007. The direct effect on the STEP market was small, as at that time only three ABCP programmes were STEP-labelled. However, well-rated MFI STEP programmes were apparently less affected by the turmoil, as their yields rose less than EURIBOR in, for example, the one-month segment (see Chart 39).

## 6 RELATED DEVELOPMENTS

### EUROSYSTEM COLLATERAL

On 14 September 2006 the Governing Council of the ECB decided that the non-regulated STEP market would be accepted for collateral purposes in Eurosystem credit operations as soon as the STEP statistics on yields were published on the ECB website. This condition was necessary to fulfil the transparency requirements of the Eurosystem's collateral framework.

As of 2 April 2007 the ECB publishes daily STEP yield statistics for STEP-labelled issues on its website.<sup>64</sup> Hence, the STEP market has since been accepted as a non-regulated market for collateral purposes in Eurosystem credit operations. In order to be eligible as collateral for Eurosystem operations, the securities issued under a STEP Programme have to comply with all eligibility criteria.<sup>65</sup>

The Governing Council assessed the STEP market on the basis of the provisions of the STEP Market Convention and related documents. The non-regulated STEP market (i.e. non compliant with MiFID) was considered a safe, accessible and transparent market and thus, for the purpose of the collateral framework of the Eurosystem, equivalent to a regulated market. Retention of this characteristic depends on the strict implementation of the STEP provisions.

### TREATMENT UNDER THE UCITS DIRECTIVE

There is no unified legal framework applicable to short-term securities at the EU level. MiFID<sup>66</sup>

defines money market instruments as “those classes of instruments which are normally dealt in on the money market, such as treasury bills, certificates of deposit and commercial papers excluding instruments of payment”.<sup>67</sup> The Prospectus Directive<sup>68</sup> covers transferable securities with the exception of money market instruments as defined in MiFID and having a maturity of less than 12 months, for which national legislation may be applicable.<sup>69</sup>

For the purposes of the UCITS Directive,<sup>70</sup> money market instruments are defined as instruments normally dealt in on the money market which are liquid, and have a value which can be accurately determined at any time.<sup>71</sup> UCITS can invest in money market instruments without any limits, provided that they are transacted on, for instance, a regulated market within the meaning of the MiFID, or admitted to

64 <http://www.ecb.europa.eu/stats/money/step>.

65 See Chapter 6 of “The implementation of monetary policy in the euro area: General documentation on Eurosystem monetary policy instruments and procedures” for the criteria. For further information see also <http://www.ecb.europa.eu/mopo/assets/html/index.en.html> and <http://www.ecb.europa.eu/pub/pdf/other/gendoc2006en.pdf>. STEP compliant ABCP can also be eligible if they fulfil all the eligibility criteria.

66 Directive 2004/39/EC of the European Parliament and of the Council of 21 April 2004 on markets in financial instruments amending Council Directives 85/611/EEC and 93/6/EEC and Directive 2000/12/EC of the European Parliament and of the Council and repealing Council Directive 93/22/EEC (OJ L 145, 30.4.2004, p. 1). Directive as last amended by Directive 2006/31/EC (OJ L 114, 27.4.2006, p. 60) (MiFID).

67 Article 4 (1)(19) of the MiFID.

68 Directive 2003/71/EC of the European Parliament and of the Council of 4 November 2003 on the prospectus to be published when securities are offered to the public or admitted to trading and amending Directive 2001/34/EC (OJ L345/64 of 31.12.2003, p. 64).

69 Article 2(1)(a) of the Prospectus Directive.

70 Undertaking for collective investment in transferable securities. See Council Directive 85/611/EEC of 20 December 1985 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (the UCITS Directive) (OJ L375, 31.12.1985, p.3).

71 Article 1(9) of the UCITS Directive. Recital 4 of the Directive 2001/108/EC of the European Parliament and of the Council of 21 January 2002 amending the UCITS Directive, with regard to investments of UCITS (OJ L 41, 13.2.2002, pp. 35–42) provides that: “money market instruments cover those transferable instruments which are normally not traded on regulated markets but dealt in on the money market, for example treasury and local authority bills, certificates of deposit, commercial paper, medium-term notes and bankers’ acceptances”.

official listing on a stock exchange in a non-Member State.<sup>72</sup> UCITS may also invest in money market instruments which are not admitted to or not dealt in on a regulated market within the meaning of the MiFID,<sup>73</sup> provided that they fulfil the criteria set out by the implementing measures of the UCITS Directive.<sup>74</sup> If the money market instruments do not fall into the two above main categories, they remain eligible, but within the ceiling of 10% imposed by the UCITS Directive.<sup>75</sup>

As regards, in particular, the criteria applicable to money market instruments issued by corporations and certain types of securitisation vehicles,<sup>76</sup> the information on both the issue or the issuance programme and the legal and financial situation of the issuer prior to the issue must be “verified by appropriately qualified third parties not subject to instructions from the issuer”. The criteria applicable to money market instruments issued by establishments subject to prudential supervision are less stringent. The ECB has recently stressed that the requirement of an appropriately qualified third party controlling the information does not lend itself to an easy interpretation and also that it is not clear who should ultimately decide on the “appropriateness” of third parties.<sup>77</sup> In light of these difficulties, it is crucial to ensure a uniform application of this criterion in the various EU Member States. In particular, it needs to be clarified which entities are covered by the expression “third parties” (i.e. whether, for instance, central banks active in this field, the STEP Secretariat or law firms are included in this category).

## 7 OPPORTUNITIES AND CHALLENGES

### HARNESSING MARKET FORCES FOR FINANCIAL INTEGRATION

STEP has been successfully launched and the number of STEP-labelled issuance programmes has been steadily growing. However, the STEP initiative and its governance still face important challenges and opportunities.

First, the STEP Market Convention should be regularly reviewed to make sure that it accurately reflects the structural developments in the market and that its provisions effectively enhance financial integration and development.

Second, it is essential that the STEP Market Committee, in particular when reviewing the STEP Market Convention, ensures that the coverage of STEP appropriately matches the overall European short-term paper market.

Third, the STEP Market Committee should continue to strike an appropriate balance among the different constituencies (issuers, dealers and investors) that are active in the various underlying markets.

Finally, the STEP initiative is designed in such a way that it interacts with the success of the underlying market segments (e.g. TCN, ECP). More competitive, open and transparent market segments and the granting of a STEP label, will ultimately lead to higher market integration and business activity and a more developed short-term securities market in Europe.

The sustained success of the initiative will be promoted if the STEP Market Committee and the STEP Secretariat work closely with the relevant European associations representing the different constituencies, and possibly extend their partnership with these.

72 See Article 19(1) (a), (b) and (c) of the UCITS Directive.

73 See Article 19(1)(h) of the UCITS Directive and paragraph 9 of the preamble of the Commission’s Directive.

74 Commission Directive 2007/16/EC of 19 March 2007 implementing Council Directive 85/611/EEC on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS) as regards the clarification of certain definitions (the Commission’s Directive).

75 Article 19 (2)(a) of the UCITS Directive.

76 Article 19(1)(h), second and fourth indents of the UCITS Directive.

77 See the ECB opinion of 12 December 2006 on a draft Commission Directive implementing Council Directive 85/611/EEC of 20 December 1985 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS) as regards the clarification of certain definitions (CON/2006/57), OJ C31/1 of 13 February 2007, paragraph 2.4.

## LEGAL SOUNDNESS AND EFFECTIVENESS

In a heterogeneous legal environment, the STEP Market Committee will need to ensure that the legal effectiveness of the STEP label and the legal soundness of the STEP Market Convention is maintained. This may require continued attention and present organisational challenges.

## TOWARDS BEST STANDARDS FOR DOCUMENTATION AND DISCLOSURE

In terms of concrete initiatives which are being undertaken, particular interest is raised by the current discussions among market participants and the STEP Market Committee to assess the performance of the STEP market. The EBF, ACI, the International Capital Market Association (ICMA), market participants and lawyers from the different domestic (e.g. TCN) or international (e.g. ECP) market segments are currently working towards further enhancing the quality of STEP's market standards.

The STEP Market Committee can also contribute to the continuous success of the STEP market by actively following all relevant debates and initiatives that affect European short-term securities. One example is the initiative launched by the European Securitisation Forum (ESF) and the Securities Industry and Financial Markets Association (SIFMA) to improve the functioning of the ABCP market. The best market practices and standards for ABCP will be best pursued if the STEP Market Committee closely cooperates with all relevant parties.

## FURTHER IMPROVEMENTS IN DATA TRANSPARENCY

The ECB, together with some NCBs and securities settlement systems, is progressively improving STEP statistics. In 2008 the remaining data providers will be added to the daily data transmission. This will enable the ECB to release the full set of statistics on daily issuance, broken down by sector, maturity and rating and on outstanding amounts for which, in addition, a currency breakdown will be released.

This will complement the future daily releases of outstanding amounts by individual programme, which will also show the respective currency composition.

The ECB statistics framework aims to serve the needs of short-term securities market participants, especially final investors. The role of the STEP Market Committee and the STEP Secretariat in regularly monitoring the data concerns and needs of the different categories of participants will be crucial in this respect.

In particular, it will be very important that the STEP Market Committee and the STEP Secretariat regularly contribute to enhancing market transparency by defining those data needs which (i) cannot be adequately accomplished by commercial entities, in particular for reasons of confidentiality of individual information, and (ii) are aimed at improving the smooth functioning of the market under normal and stress conditions.

## SMOOTH HANDLING OF THE LABELLING PROCESS

While the STEP Secretariat will remain responsible for granting, withholding or withdrawing the STEP label in accordance with the criteria and requirements laid down in the STEP Market Convention, this does not rule out operational arrangements with qualified third parties, based on a sound contractual framework.

## 8 CONCLUSIONS

This Special Feature first described the history of the STEP initiative, its characteristics and main actors. Second, it highlighted how the catalytic role performed by the ECB, complemented by the operational support provided by the Eurosystem NCBs, was instrumental in the success of the project. Third, the Special Feature showed how rapidly the STEP label has been accepted, promoting transparency and financial integration. However, the STEP Market Committee and the STEP Secretariat still face

both important challenges and opportunities in expanding the recognition and usage of the STEP label with the objective of further promoting the development of the pan-European market for short-term securities.

The STEP experience illustrates the powerful role of private sector initiatives in fostering progress in the integration of the euro area financial market. The Eurosystem continues to stand ready to act as a catalyst for market-led cooperation within this field and any other market segment where this may be useful.



## C. INTEGRATION AND DEVELOPMENT OF MORTGAGE MARKETS IN EUROPE

*The process of further integration of mortgage markets in Europe has not seen major advancements over the past few years. Markets continue to be characterised by significant differences across countries and obstacles that restrict cross-border activity, both on the lending and on the funding side. Recently, the European Commission published its White Paper on the Integration of EU Mortgage Credit Markets, setting out its policy vision in this area. This Special Feature discusses the main areas of interest from the ECB's point of view, with a particular emphasis on the implications of further integration in European mortgage markets for monetary policy and financial stability.*

### I INTRODUCTION

The financial system performs a crucial role in the economy. Mortgage markets constitute an important part of the euro area financial system, accounting for approximately 16% of total MFI assets and 29% of total MFI loans at the end of the third quarter of 2007. At the same time, mortgages are by far the most important liability of the household sector, making up 59% of the total of its liabilities. Housing debt to GDP ratios have increased across the euro area, but to different degrees in different countries, with the ratio being higher and growing faster in some countries than in others.

The mortgage markets within the euro area are, despite some progress, still not fully integrated. Qualitative factors such as language, affinity, and consumer preferences create natural barriers, resulting in market diversities that put limits to the potential for integration. In addition, other factors such as domestic infrastructures (e.g. land registers, notarisation requirements) and differing legal and consumer protection frameworks create barriers that restrict the range of mortgage products on offer in individual countries; they also prevent advantage being taken of economies of scale resulting from a

more integrated market. These factors can, and should, be addressed by policy makers and market participants.

Over the past years, the Commission has studied and conducted consultations on the need for, and the possibilities of, further strengthening the mortgage market integration process. This resulted in the publication of a green paper in 2005 followed by a white paper and an accompanying impact assessment study in December 2007.<sup>78</sup> These set out and give the background to the Commission's policy vision on promoting further integration and development across the mortgage markets in the EU. The ECB welcomes and agrees with the measures and further actions that have been announced by the Commission.

The ECB will continue to work in close cooperation with the Commission in this area of financial market integration. In this respect, the role of the public authorities is to create an economic, legal and institutional environment conducive to financial integration. Although mortgage-backed securities are an important segment of the Eurosystem's collateral and therefore very relevant to the ECB, the ECB sees the process of financial integration in mortgage markets first and foremost as a market-driven process. The ECB stands ready to encourage and support initiatives by market participants to strengthen convergence in market practices.

This Special Feature presents the main policy considerations, from the ECB's point of view, regarding the situation of the euro area mortgage markets. In view of its significance in the financial system, further integration of the mortgage markets may be of relevance for the conduct of monetary policy, since it will tend to impact the monetary policy transmission mechanism. By fostering the development of the financial system, further integration also increases the potential for stronger non-inflationary growth.

<sup>78</sup> "Green Paper on Mortgage Credit in the EU", COM(2005) 327, 19 July 2005; "White Paper on the Integration of EU Mortgage Credit Markets", COM(2007) 807, 18 December 2007; "Impact Assessment", COM(2007) 1683, 18 December 2007.

The integration of mortgage markets is also relevant to the Eurosystem's task of contributing to the safeguarding of financial stability. Recent developments in the financial markets that originated in the sub-prime mortgage markets in the United States have shown that a high degree of integration of mortgage (funding) markets and the development of new, globally used products may also entail risks to financial stability through the spill-over of shocks across countries. Thus, any initiative to foster the further integration of European mortgage markets needs to be well designed and its possible implications for policy carefully assessed.

This Special Feature discusses in more detail both the credit/product side and the funding side of the mortgage markets in Europe. Section 2 describes the present situation in the mortgage credit markets, the causes and consequences of their diversity and the scope for further integration. The credit side, in particular, has monetary policy and financial stability implications, which are discussed in Section 3. Section 4 then turns to the funding markets, reviewing them in a similar way to the credit markets. Section 5 concludes by presenting the main policy implications.

## 2 MORTGAGE CREDIT MARKETS

### PRESENT LANDSCAPE

The mortgage credit markets in the euro area are characterised by their heterogeneity across Member States. In particular, the relative importance of various products and contract features differ significantly from country to country. For example, the use of fixed and variable rate mortgages, early repayment and prepayment options vary considerably, as well as the practices regarding loan-to-value ratios and loan maturity. Chart 40 illustrates the diversity of initial interest rate fixation periods in terms of new business across euro area countries.

Over the past ten years, mortgage interest rates have fallen across euro area countries in line with the general reduction in nominal interest rates. Although some convergence in the prices of mortgage credit occurred, this development has ceased since January 2003, and the current rates still feature a non-negligible degree of cross-country heterogeneity,<sup>79</sup> as illustrated by the example of variable rate mortgages in Chart 41.<sup>80</sup>

Overall, the mortgage rates in the euro area seem to be more dispersed across countries than the rates in the United States are across regions, which suggests that the euro area mortgage market is less integrated.<sup>81</sup> Figures indicate that dispersion in the United States is less than a third of that in the euro area at the short end of the mortgage rates and only a fraction of that at the long end.

Significant diversity across countries is also observed in what is often referred to as mortgage equity withdrawal (MEW).<sup>82</sup> However, available survey evidence indicates that, although growing, MEW is not a phenomenon of considerable importance in the euro area.<sup>83</sup> This

79 Apart from differences in institutional and fiscal frameworks, cross-country differences in mortgage rates may also reflect differences in consumers' intrinsic characteristics, such as preferences, age and other factors that determine systematic or cyclical differences in credit risk; see C. Kok Sørensen and J.D. Lichtenberger (2007), "Mortgage Interest Rate Dispersion in the Euro Area", ECB Working Paper No. 733.

80 A similar degree of heterogeneity is also found for interest rate differences on loans to households for house purchase with a longer period of initial rate fixation, see ECB (2006), "Differences in MFI interest rates across euro area countries", 20 September.

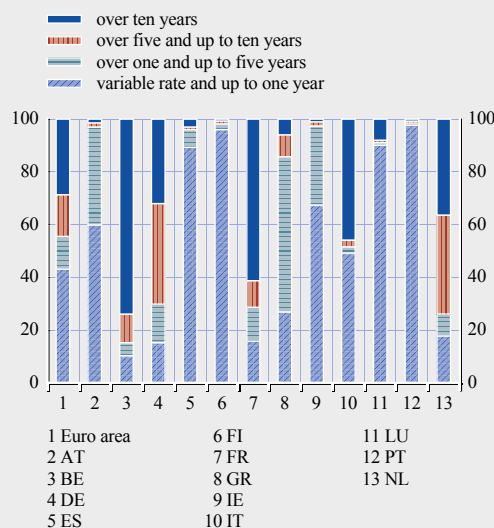
81 See Box 11 in the ECB's Annual Report 2005. Because of differences in underlying loans and in the relative importance of the different market segments, due care should be taken in comparing mortgage rates between the euro area and the United States.

82 This term refers to the practice of households to take on debt that is secured on the housing stock but not invested in it, using it instead to finance consumption spending, the acquisition of other assets or the repayment of unsecured debt. In principle, this is possible whenever the value of the property exceeds the outstanding amount of loans drawn against it, while the existence of collateral (the house) would normally lead to terms that are more favourable than unsecured debt.

83 See Box 2 entitled "The results of the July 2006 bank lending survey for the euro area", in the August 2006 issue of the ECB's Monthly Bulletin.

**Chart 40 New business volume of loans to households for house purchase by period of initial rate fixation**

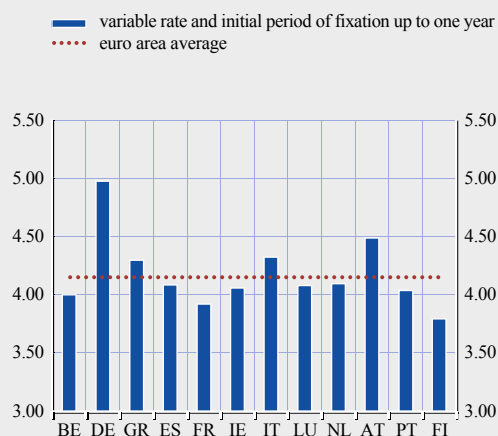
(percentages of total; average between January and November 2007)



Source: ECB.

**Chart 41 MFI interest rates on loans to households for house purchase**

(percentages per annum; average between January 2005 and December 2007)



Source: ECB.

is corroborated by estimates based on aggregate data.<sup>84</sup> Indeed, Chart 42 illustrates that in most countries of the euro area, households continue to consistently inject, rather than withdraw, housing equity. This is in contrast to the United Kingdom, where MEW is estimated to have added around 5.5% to post-tax income on average in the period between the first quarter of 2006 and the second quarter of 2007.<sup>85</sup> In the United States, a similar calculation gives 3.2% MEW in 2006.<sup>86</sup>

Technological developments, an increasing investor demand and financial innovation have contributed to the launch of innovative housing finance products in Europe in recent years. These products comprise different types and combine different features of fixed and variable rate mortgages, variable-payment mortgages and mortgage loans with complementary services, such as income protection insurance.<sup>87</sup> No single country in the euro area, however, offers a complete range of all products available.

## CAUSES AND CONSEQUENCES OF OBSTACLES TO CROSS-BORDER LENDING

Cross-border lending exists and has increased during the past ten years along with technological developments, internationalisation and M&A activity in the banking sector. However, the attractiveness of cross-border activities is certainly affected by the prevailing different legal and consumer protection frameworks, language and cultural diversity and differences in consumer preferences. While the latter factors are presumably given, even in the long term, the first one can be affected by policy makers.

<sup>84</sup> Owing to data availability limitations, a number of caveats prevail regarding the appropriateness for the current purpose of the available statistical definitions at the euro area level of household borrowing and residential investment.

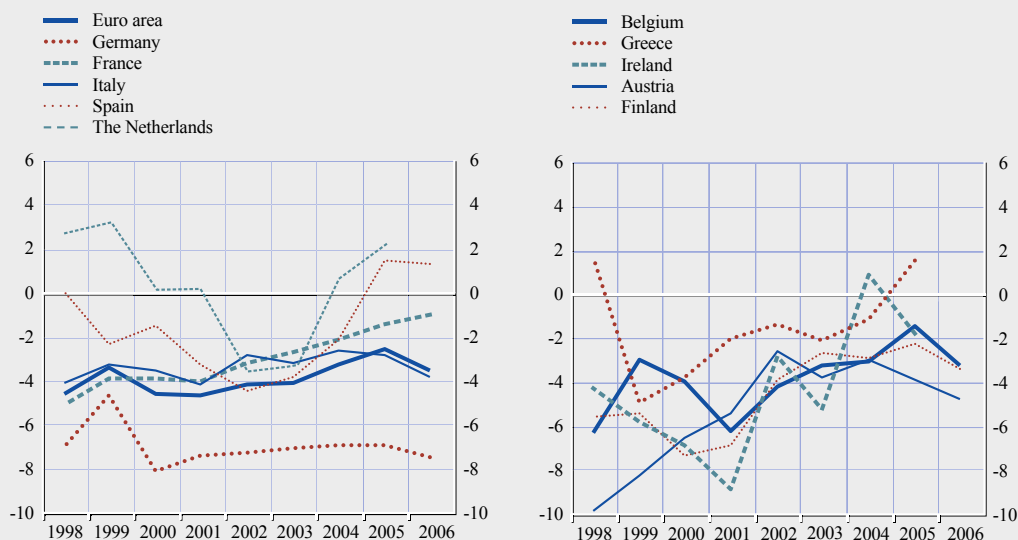
<sup>85</sup> See the quarterly estimates for housing equity withdrawal by the Bank of England at <http://www.bankofengland.co.uk/statistics/hew/2007/jun/index.htm>.

<sup>86</sup> The source is the flow of funds accounts of the United States. The figure is calculated as the difference between net increase in liabilities (mortgage debt on non-farm homes) and gross investments in tangible assets (residential fixed investments) relative to disposable personal income.

<sup>87</sup> See, for example, the Committee on the Global Financial System, "Housing finance in the global financial market", January 2006.

Chart 42 Mortgage equity withdrawal in euro area countries

(as a percentage of disposable income)



Sources: ECB and Eurostat.

Notes: Mortgage equity withdrawal is calculated as the difference between the annual net flows in loans to households for house purchase and annual gross fixed capital formation in housing. Luxembourg and Slovenia are not shown, owing to data availability limitations.

The current limited cross-border activity may affect economic growth. In general, more integrated mortgage credit and funding markets are likely to stimulate competition and efficiency in the mortgage markets. This should increase the ability of the economy to sustain a higher rate of output growth. A more competitive market should lead to more choice and better value for consumers, thereby enhancing market completeness. Indeed, some studies show that full integration of the EU mortgage market could increase the level of EU GDP by 0.1 to 0.7%.<sup>88</sup>

In principle, less developed and integrated mortgage markets do not allow economic agents to share risks optimally. This also affects the monetary transmission mechanism, which Section 3 investigates in more detail.

Finally, the differences across countries as regards mortgage funding markets, discussed in more detail in Section 4, may also influence the provision of mortgage loans as it may affect the products on offer to the consumer. For example, if a mortgage lender does not have

suitable stable long-term financing, it may not be able to finance products such as longer-term fixed rate mortgages. Conversely, a supply of certain standardised products in the housing credit market may enhance the functioning of the cross-border funding market via improved cross-border knowledge on products that such standardisation would imply.

Overall, higher integration and competition in the mortgage credit markets would benefit consumers, who would have a wider array of products to choose from according to their individual risk preferences and consumption plans. The process of integration should in addition result in economies of scale, leading to lower prices and the access of more households to mortgage markets.

<sup>88</sup> See, for example, Mercer Oliver Wyman and the European Mortgage Federation, "The Costs and Benefits of Integration of EU Mortgage Markets", London Economics, August 2005, and "Study on the Financial Integration of European Mortgage Markets", October 2003.

## SCOPE FOR FURTHER INTEGRATION

Survey evidence shows that lenders in particular are generally interested in expanding their cross-border mortgage activity.<sup>89</sup> Indeed, the December 2007 White Paper of the European Commission recognises that many mortgage lenders express a significant interest in developing their activities in countries where they are not yet present. However, the economic, legal and institutional differences across countries form significant impediments to entering foreign markets.

European borrowers, by contrast, show only a limited interest in shopping for mortgage products outside their national boundaries. Reasons for this are factors such as language, distance, consumer preferences, but also insufficient information about, and confidence in, lenders not operating in the borrower's country and uncertainty about the legal and institutional rules governing loans taken up in other Member States.

The Commission therefore concludes in its White Paper that the integration of EU mortgage markets will essentially be supply driven, in particular through the establishment of branches, collaborations, etc. in other Member States. As regards the type of policies to be pursued, those that increase information availability and transparency both for lenders and borrowers, and those that help increase product diversity by removing obstacles to the integration of the general banking market seem to be most promising.

In this context, the White Paper identifies a number of key areas of interest, such as pre-contractual information, the transparency of the annual percentage rate of charge, promoting responsible lending behaviour and proposes further work on the early repayment option. The Commission envisages conducting a profound impact analysis on the possible actions on these issues in 2008. In addition, it will present a Recommendation on issues linked with harmonised foreclosure procedures as well as cross-border availability of information on registration and property valuation.

Integration of the banking market and the broadening of the range of products available to all European customers could be further fostered through initiatives which favour product standardisation across countries, as this is likely to foster consumers' product knowledge. At the same time, it is important to ensure that such standardisation does not hamper competition and product innovation. Increased transparency and a more harmonised terminology and definitions would be beneficial as well. The ECB also agrees with the Commission that this process towards a more integrated mortgage market needs to involve a careful consideration of all options and engage both market participants and policy makers.

Furthermore, product diversity could be improved by enhancing lender access to mortgage funding, as will be discussed in more detail in section 4.

## 3 POLICY CONSIDERATIONS

### GENERAL CONSIDERATIONS

The integration of mortgage lending markets across the euro area may have implications for monetary policy and financial stability, two policy areas where the Treaty entrusts important responsibilities to the Eurosystem.

Integration affects the structure and operation of financial markets and services which should result in a more homogeneous transmission of monetary policy impulses across euro area countries. However, by the same token, it may entail new risks. First, the probability of shocks originating within the area becoming area-wide may increase. Second, integration may strengthen the reaction of the economic and financial system to all shocks, whether originating inside or outside the euro area. This might result in higher cyclical volatility and more

<sup>89</sup> See, for example, "Eurobarometer 205: Public Opinion in Europe – Financial Services", January 2004; "Eurobarometer 230: Public Opinion in Europe on Financial Services", August 2005; "The Costs and Benefits of Integration of EU Mortgage Markets", London Economics, August 2005, p. 57.

unstable price developments. Any initiatives to foster integration will have to take the possible implications for monetary policy and financial stability into account.

Monetary policy affects the economy by influencing both the business sector in its productive activity and investment behaviour (the so-called investment channel) and the household sector in its consumption behaviour (the consumption channel). As the residential mortgage markets are part of the retail credit market, the integration of the mortgage markets will primarily affect the consumption channel and thereby its prominence relative to the investment channel.

In terms of the transmission mechanism, monetary policy affects the economy by influencing bank lending rates and also by shaping financial market expectations about the future course of monetary policy. These expectations influence the prices of financial instruments, including mortgage loans. Focusing on the household sector, monetary policy actions may, furthermore, affect household consumption decisions in two ways. First, they induce changes in the net worth of the household mortgage liabilities and hence in their net wealth and, second, in so doing affect their ability to take up credit against collateral.

A broader and more integrated mortgage market should improve pricing transparency, with rates more likely to reflect the creditworthiness of borrowers, while cost efficiency would at the same time benefit from increased competition and potentially larger economies of scale.

Highly integrated and developed mortgage markets allow more effective risk-sharing as creditors can better diversify their mortgage credit portfolios across countries and thereby mitigate country-specific mortgage credit risk. This increases the ability of the euro area economies to absorb asymmetric shocks and those common shocks that, due to structural differences, generate different responses in the economies.

The downside of such risk sharing and diversification is that national mortgage markets could become more vulnerable to the spillover from shocks coming from abroad. Increased foreign competition resulting from more integration may also affect banks' credit standards and pricing power. To the extent that a decrease in banks' interest margins is compensated for by volume growth, this could lead to irresponsible lending and generate financial vulnerabilities.

#### IMPACT ON THE MONETARY POLICY TRANSMISSION MECHANISM

More mortgage market integration may have implications for the monetary policy transmission mechanism, by changing the speed and degree of interest rate pass-through. More specifically, the monetary policy transmission channel may be affected by the availability of a broad range of mortgage products, such as variable and fixed rate mortgages, mortgages with early repayment and prepayment options, and MEW products.

At present, there is a wide diversity across countries as regards the use of variable and fixed rate mortgages (see Chart 40). A higher homogeneity in the interest rate fixation structure is expected to reduce heterogeneity in the transmission of monetary policy impulses. With a predominance of variable rate mortgages in the euro area, the interest rate risk would be shifted to the borrowers (households). The response of private consumption to changes in monetary policy would be amplified because of its more immediate impact on households' disposable income.<sup>90</sup> Fixed rate mortgages, by

<sup>90</sup> Angeloni et al.(2003), "Monetary policy transmission in the Euro Area", CUP. A fixed rate contract shifts the interest rate risk to the lender (banks) which will tend to pass it on to other investors via interest rate conditions on the funding of the loan. Non-financial corporations, however, generally borrow at short rates to finance working capital and inventories. Moreover, the share of variable rate, long-term lending to non-financial corporations has tended to increase over recent years. Therefore, a change in the stance of monetary policy will induce lenders (banks) to change the cost of credit to firms (which, in turn, will adjust their investment plans).



contrast, tend to smooth the effect of monetary policy on private consumption because the debt service burden of existing borrowers is not affected.

Currently, fixed rate mortgages prevail in about half of the euro area countries, while variable rate mortgages dominate in the other countries. Fixed rate mortgages, however, are dominant in the largest euro area countries, which may be one factor explaining the evidence that it is currently not the consumption channel, but the investment channel that is dominant in the euro area.<sup>91</sup>

Monetary policy would be more efficient if households made well-informed and forward-looking decisions on the basis of accurate and transparent information on the price and other terms and conditions of a mortgage loan. It is also likely that some of the differences across countries that are related to limitations in supply, and not to different preferences, would decline with increasing integration of markets, thereby reducing heterogeneous responses to monetary policy shocks that are not rooted in the structure of the economy.

The degree to which mortgage loans are contracted at a variable or fixed rate is also relevant for financial stability, as it influences how the interest rate risk entailed in mortgage lending is distributed between mortgage creditors and debtors. If mortgage loans are contracted at a fixed rate, the risk of rising interest rates in effect constitutes an income risk to creditors, unless this risk has been passed on to their funding providers (e.g. through the issuance of covered bonds). By contrast, if variable rates prevail, the risk of a rate increase constitutes a risk to the mortgage debt service capacity of debtors and therefore, ultimately, a credit risk to mortgage lenders. The credit risk depends on the duration of the fixation period of the contracted mortgage interest rates and on the maturity of the loan. If the maturity of the loan tends to be relatively short, short-term fixed rate mortgage borrowers are nonetheless exposed

to interest rate risk when the interest fixation period expires.

Therefore, while the interest rate risk of banks may have somewhat decreased through the increasing popularity of variable rate mortgages in a number of countries, their credit risk could have increased if the capacity of borrowers to service their loans deteriorates when interest rates are going up.

Early repayment and prepayment options in mortgage contracts and requiring banks to price them separately should lead to greater cost transparency and flexibility for consumers.<sup>92</sup> At the same time, the separate pricing of the repayment option, preferably linked to the expected path and volatility of interest rates, would ensure that decisions to repay early will be taken on the basis of the real refinancing costs that early repayment entails to the lender. Furthermore, a more homogeneous regime and the resulting broader range of products available across the euro area as a whole would reduce the differences in the transmission mechanism, which arise from the asymmetric reactions of borrowers under heterogeneous conditions.

As regards its effect on the monetary policy transmission mechanism, the prepayment option will tend to lead to an asymmetric reaction of households to changes in monetary policy stance. During a monetary policy easing, borrowers would find it opportune to refinance their loans at

91 Recent empirical evidence suggests that interest rate pass-through in the euro area mortgage markets is relatively quick and complete. For the euro area as a whole, changes in market rates are passed on, on average, by around two-thirds after three months and by more than 90% after six months (Gropp et al. (2007), "The dynamics of bank spreads and financial structure" ECB Working Paper No. 714). However, some heterogeneity across countries remains in the extent to which monetary policy interest rate changes pass through to the mortgage market. This reflects differences in competition, cyclical positions and bank-specific conditions (C. Kok Sørensen and T. Werner (2006), "Bank interest rate pass-through in the euro area – a cross country comparison", ECB Working paper No. 580), as well as supply side factors and institutional factors (C. Kok Sørensen and J.D. Lichtenberger (2007), "Mortgage Interest Rate Dispersion in the Euro Area", ECB Working Paper No. 733).

92 In some jurisdictions (e.g. in Italy), banks are not allowed to claim a compensation in the case of early repayment.

the lower rate, thus reducing their interest burden and increasing their spending capacity. On the other hand, as soon as monetary policy enters a tightening cycle, borrowers would in principle either retain their fixed rate loans or refinance their variable rate loans with fixed rate ones in order to lock in the lower interest rate level.<sup>93</sup> Therefore, the prevalence of the early repayment option tends to increase the effects of an easing of monetary policy, while reducing the effects of a monetary policy tightening. The magnitude of such effects will, of course, depend on the costs of refinancing, which should be reflected in the early repayment fees.

Greater mortgage market integration may also increase MEW. The ability of households to extract equity out of their housing wealth is potentially an important channel of the monetary policy transmission mechanism. Credit availability to households and the cost, i.e. the interest rate at which it can be obtained, depend to a very large extent on their net wealth, since household assets can be used as collateral. In particular, higher asset prices will imply higher net worth, which in turn will allow for higher household borrowing and spending.<sup>94</sup> As a consequence, monetary policy can have an effect on real activity via the impact of interest rate changes on house prices and thus household net wealth.<sup>95</sup> The extent to which this channel will be operational crucially hinges on the ability of households to borrow against the increased values of their housing assets to finance consumption expenditure (i.e. on the availability of MEW credit products). Indeed, international evidence suggests that the higher the level of MEW in an economy, the higher is the marginal propensity to consume out of housing wealth.<sup>96</sup>

MEW products may, however, raise certain financial stability concerns, in particular through their effect on house prices, as discussed in greater detail in the next sub-section.

Finally, the integration of mortgage funding markets and the likely increase in the share of mortgage funding on the capital markets that this would entail, discussed in greater detail in Section

4, would increase the sensitivity of mortgage loan supply to monetary policy actions.

### POSSIBLE CONSEQUENCES OF THE IMPACT ON THE TRANSMISSION MECHANISM

As a matter of principle, the design of monetary policy should take into account the risk that mortgage markets may exacerbate cyclical developments, in particular in asset prices, which may also pose risks to financial stability.

In this respect, some important elements of the ECB's two-pillar strategy should be highlighted. First, the ECB primary objective of price stability is defined in terms of the Harmonised Index of Consumer Prices (HICP). Therefore, real estate prices as such do not constitute part of the policy target variable. However, the encompassing nature of the economic analysis in the first pillar guarantees that real estate and mortgage developments are taken into account in the assessment of the outlook for price stability. Moreover, the explicit role of the analysis of monetary and credit aggregates permits the information from the real estate sector to be combined with balance sheet and credit data. In short, by going beyond the classic indicators of house price sustainability and by better identifying and monitoring the credit channel, the ECB can form a more robust opinion about the risks to price stability and to the financial system that stem from mortgage debt.

<sup>93</sup> This may not necessarily be the case if the term spread charged on fixed-rate loans already incorporates the effect of expected future interest rate increases, rendering fixed rate contracts less attractive for borrowers.

<sup>94</sup> This mechanism is known in the literature as the "financial accelerator", see B. Bernanke, M. Gertler and S. Gilchrist (1999), "The Financial Accelerator in a Quantitative Business Cycle Framework", in J. Taylor and M. Woodford (eds.), *The Handbook of Macroeconomics*, Vol. 1, North-Holland, Amsterdam. For a model that examines the role of housing as collateral in particular, see M. Iacoviello (2005), "House Prices, Borrowing Constraints, and Monetary Policy in the Business Cycle", *American Economic Review*, Vol. 95 (3).

<sup>95</sup> In principle, house prices reflect the present value of the stream of future benefits (rents or user services) stemming from the residential property. Monetary policy, through its impact on interest rates, affects the discount factor used to calculate this present value.

<sup>96</sup> P. Catte, N. Girouard, R. Price and C. André (2004), "Housing market, wealth and the business cycle", OECD Economics Department Working Paper No. 394.

More complete and comprehensive integration through a broader range of mortgage products is likely to reduce the costs of mortgage financing mainly via economies of scale and greater efficiency. This would lead both to some change in the household consumption basket towards housing and to a corresponding increase in the household debt to disposable income ratio. But these developments will be of a relatively limited size and therefore cannot by themselves be expected to have any significant positive or negative consequences for the conduct of monetary policy or for the stability of the financial system. However, when they form part of an overall comprehensive liberalisation process accompanied by a period of economic buoyancy, there may be a risk to financial stability, as demonstrated by past experiences.

As regards the possible developments in terms of variable versus fixed rate mortgages, the experience of industrialised countries does not support the notion that countries where the variable rate contracts dominate are those where monetary policy is more successful in delivering low and less volatile inflation.<sup>97</sup> A movement towards a uniform pattern offering more choice for the setting of the fixation period of contracts across euro area countries would probably result in a slight strengthening of the consumption channel of monetary policy transmission.

As regards the early repayment regime, monetary policy may be confronted with more or less strong asymmetric effects of changes in the monetary policy stance. The more predominant the availability of the early repayment option, the stronger and the more direct the expansionary effect of an easing of the stance would be. On the other hand, the consumption channel would be less reliable during tightening phases because of the tendency of mortgage borrowers to lock themselves in at the lowest interest rate levels. This asymmetry may, in practice, be limited to periods when a tightening and an easing of policy follow each other relatively quickly. In that case, the easing of policy may not have

much effect on household behaviour, as they may still be locked in at interest rate levels that have not yet been reached.

A strong prevalence of MEW will amplify the effects of an easing of monetary policy.<sup>98</sup> MEW can itself become destabilising, because it encourages the leveraging of housing equity when prices go up. The danger is therefore greater when house prices have been increasing substantially for a significant period of time. Under such circumstances, economic agents tend to extrapolate past house price increases into the future and thus engage in unsustainable borrowing and lending behaviour, thereby fuelling the ongoing house price speculation. Such behaviour would magnify cyclical volatility and lead to undesirably pronounced boom and bust phenomena<sup>99</sup>, which are to be avoided both from a monetary policy and a financial stability perspective.

As loan-to-value ratios on mortgage loans also tend to be relatively high in countries where MEW prevails, potential credit losses could be significant if risks for house prices materialise. However, empirical evidence on this issue is still relatively limited.

In conclusion, while the Eurosystem is neutral as concerns the final configuration which may

<sup>97</sup> This is because monetary policy actions have a direct effect on the mortgage debt servicing of households, which in theory should translate into changes in consumption decisions. However, in the case of fixed rate mortgages, the debt service burden of the mortgage stock would not change with monetary policy (D. Miles (2004), "The UK Mortgage Market: Taking a longer-term view", Report for HM Treasury, March).

<sup>98</sup> For policy-related aspects of the role MEW and other innovations play in influencing the macro-financial environment, see H. Zhu (2005), "The importance of property markets for monetary policy and financial stability", in "Real estate indicators and financial stability", BIS Papers No. 21; G. Debelle (2004), "Household debt and the macroeconomy", *BIS Quarterly Review*, March; M. McConnell, R. Peach and A. Al-Haschimi (2003), "After the refinancing boom: will consumers scale back their spending?", *Current Issues in Economics and Finance*, Federal Reserve Bank of New York, December. For a theoretical approach see K. Aoki, J. Proudman, and G. Vlieghe (2004), "House prices, consumption, and monetary policy: a financial accelerator approach", *Journal of Financial Intermediation*, Vol. 13(4).

<sup>99</sup> P. Hoeller and D. Rae (2007), "Housing markets and adjustments in monetary union", OECD Economics Department Working Paper No. 550.

emerge from further integration in mortgage markets, the main considerations are the following. Further integration is likely to enhance the efficiency of the financial system, to the extent that it leads to more competition and an enhanced supply of products. This should contribute favorably to the potential for growth of the euro area, to a more effective implementation of monetary policy and, in general, to a reduction in asymmetric responses to monetary policy shocks not directly linked to the main characteristics of the economies of euro area countries (and which relate, for example, to preferences or to the risk profile of economic activities). The resulting change in the transmission mechanism needs to be monitored in order to be fully taken into account when formulating monetary policy decisions. Finally, the possible consequences and risks in term of financial stability need to be carefully assessed ex-ante and constantly monitored.

## 4 MORTGAGE FUNDING MARKETS

### PRESENT LANDSCAPE

As discussed above, the market of mortgage funding instruments remains heterogeneous across countries in Europe, just like the mortgage credit market. Since both markets are closely intertwined, any fragmentation in one will feed into fragmentation in the other. In that respect,

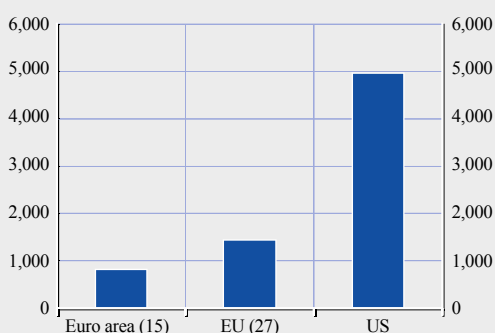
Section 2 already discussed how the conditions on which mortgage lenders have access to funds may have an important impact on both price and supply of certain types of mortgages for consumers in the primary market. This section will focus on additional issues that relate to lenders and issuers in the secondary market.

A wide range of funding sources is potentially available to lenders, including customer deposits, covered bonds, mortgage-backed securities and whole loan sales. Some of the capital market instruments, such as medium-term notes and subordinated debt, have a pan-European, if not global reach. Although customer deposits have traditionally been the main funding source in Europe, the issuance of capital market instruments, such as residential mortgage-backed securities (RMBSs)<sup>100</sup> and covered bonds,<sup>101</sup> has been increasing in recent years.<sup>102</sup> Funding using whole loan sales – i.e. transferring part of the mortgage portfolio to another lender – has so far remained limited.

Despite the increasing issuance of RMBSs and covered bonds in Europe, the markets are still smaller than in the United States (see Chart 43). In the United States, lenders fund approximately 60% of all outstanding residential mortgages

**Chart 43 Total size of covered bonds and RMBSs market**

(end-2006; EUR billions)



Sources: European Mortgage Federation; European Covered Bond Council; European Securitisation Forum; ECB calculations.

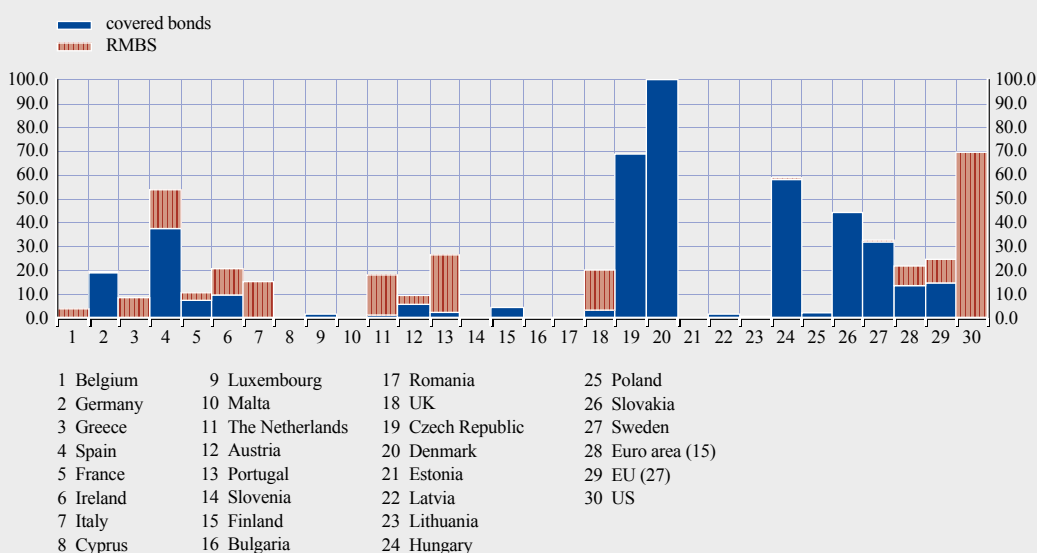
<sup>100</sup> In general, an RMBS consists in an originator of mortgage loans (i.e. the mortgage lender) transferring (i.e. selling) some of its mortgage loans to a bankruptcy-remote SPV which in turn issues debt securities that are backed solely by the cash-flows produced by the underlying mortgage portfolio. In the event of the default of the issuer (i.e. the SPV), the debt securities holder can claim the cover asset pool (i.e. the mortgage loans). This increases the safety of the debt securities for the investor (i.e. the debt securities holder). In addition, the issuance of RMBSs enables the originator of mortgage loans to transfer some credit risks off its balance sheet to the SPV, thereby freeing up own capital to be used for other purposes. RMBSs are usually issued in several tranches, ranking from senior tranches to more subordinated tranches. This makes it possible for the senior tranche to benefit from a high credit rating, which in turn facilitates the establishment of an RMBS.

<sup>101</sup> With the covered bond technique, the mortgage loans are not sold to an SPV, but remain on the mortgage lender's balance sheet. The particularity of a covered bond for its holder is that it enjoys legal protection in the event of issuer bankruptcy (i.e. "ring fencing" of the assets covering the pool against any creditor claims against the issuer), and the holder may also turn to the issuer should the cover pool not be sufficient. Most Member States have special legislation on covered bonds.

<sup>102</sup> See also the Special Feature A in Chapter II, pp. 29 ff., for indicators on securitisation and covered bonds.

**Chart 44 Share of covered bonds and RMBSs as the source of residential mortgage funding tool**

(end 2006; percentages)



Source: see Chart 43.

with market funding instruments. This market orientation has been fostered by government-sponsored enterprises such as Fannie Mae and Freddie Mac. Their role in the market, especially the eligibility criteria for the types of mortgage loans they purchase, has contributed to a high degree of standardisation in the United States. In Europe, by contrast, the majority of the funding comes from customer deposits, and on average less than 30% from market instruments (see Chart 44). Thus, there still appears to be room for growth in market funding instruments.

There is also considerable variation in the importance of RMBSs and covered bonds in the national markets. Due to factors such as the presence of a long-established legal framework or the existence of certain legal or other obstacles, only one type of instruments dominates in most countries, such as covered bonds in Germany or Denmark or RMBSs in the United Kingdom or Portugal. Thus, there is also room to improve the availability of the different mortgage funding instruments in various countries.

## CAUSES AND CONSEQUENCES OF OBSTACLES TO CROSS-BORDER FUNDING

The diversity across countries on the funding side results mainly from three factors: (i) differences in legal frameworks; (ii) asymmetric information problems; and (iii) difficulties in “unbundling” the mortgage value chain, in particular to allow for the separation of origination and servicing functions.

There are currently no common European standards for the issuance of RMBSs. This fragmentation has two dimensions. First, diverging legal and regulatory frameworks and non-uniform tax regimes among Member States do not allow the setting up of similar RMBS structures across Europe. Second, within the same Member State, RMBSs can differ significantly from each other, as various originators might have recourse to different techniques to transfer the assets to the SPV or might use different definitions of terms such as “default event”, “delinquency rate”, “loan-to-value ratio”, or the type of underlying collateral. While pursuing the same goal, and being issued

for similar reasons, RMBSs are characterised by a significant degree of heterogeneity.

Covered bonds have become increasingly popular in the European market in recent years. At the same time, their complexity has also increased. As in the case of securitisation, the legal framework defining covered bonds is different for each Member State. In addition, in those countries where there is no special law on covered bonds, credit institutions have recourse to so-called structured covered bonds, which aim to replicate covered bond laws on a contractual basis. Structured covered bonds have, however, equally been issued in some countries with specific covered bond legislation. This leads to a heterogeneous and fragmented European covered bond market.

There have been various initiatives to establish a definition for covered bonds. However, so far none has proved conclusive, owing to a lack of consensus.<sup>103</sup>

In addition, establishing a pan-European mortgage portfolio has proven problematic owing to issues related to the transfer of mortgage loans between financial institutions. Generally, when a mortgage lender wishes to transfer part of his portfolio to another financial institution within a given domestic setting, there are few legal difficulties. The domestic laws of Member States are generally able to deal with that situation efficiently – although some national legal frameworks are less well adapted to high-volume securitisation market requirements than others.<sup>104</sup> The legal problems, however, are far more fundamental when the mortgage lender wishes to transfer domestic mortgage loans to a non-resident institution or to create a single, jumbo portfolio of domestic and foreign mortgages. The cross-border trading in mortgage loan portfolios, a prerequisite for creating pan-European portfolios, is not feasible at present, because national mortgage laws differ considerably, for example in the requirements regarding debtor notification and public registration of the mortgage.

Furthermore, there continues to be asymmetric and limited access to information. Information asymmetries include different degrees of knowledge between domestic and foreign lenders. They are driven by factors such as different legal regimes for land registration and foreclosure, heterogeneous credit registers, and different market practices (e.g. valuation methods for the properties). As a result, an investor in one country would not be able to accurately judge the quality and hence the value of a mortgage portfolio originated in another country, deterring him from purchasing the portfolio.

Finally, there are important difficulties in unbundling the “mortgage value chain”. The high degree of standardisation of underlying mortgage products has facilitated the outsourcing of the servicing function by the originators of mortgage loans in the United States. In Europe, local knowledge is key in servicing mortgage loans. Against this background, mortgage loan servicing has been performed by originators in most European countries, and the third-party servicing market is in its infancy. Loan servicing on a cross-border basis has not yet developed at all.

The diversity of the funding markets affects mortgage lenders as well as investors.

The limited degree of standardisation prevents lenders from achieving economies of scale. In particular in the field of mortgage servicing, large economies of scale could be reaped if third parties service mortgage loan portfolios

<sup>103</sup> Nevertheless, some progress was made by the European Covered Bond Council (ECBC) which agreed on “common essential features” for covered bonds, as follows: (i) the bond is issued by – or bondholders otherwise have full recourse to – a credit institution which is subject to public supervision and regulation; (ii) bondholders have a claim against a cover pool of financial assets in priority to unsecured creditors of the credit institution; (iii) the credit institution has an ongoing obligation to maintain sufficient assets in the cover pool to satisfy the claims of covered bondholders at all times; and (iv) the obligations of the credit institution in respect of the cover pool are supervised by public or other independent bodies.

<sup>104</sup> For example, some Member States require mortgage rights to be publicly registered in the land register before such rights arise in law, but the registration process may be costly and unpredictable in speed.



of multiple originators, since the fixed costs to establish and maintain this function are high. In light of the crisis in sub-prime mortgage market in the United States, however, caution is warranted. The originator typically has an advantage in acquiring local information, which is important for monitoring the loan. Moreover, the diversity across funding instruments hampers secondary market liquidity. Overall, this may result in higher refinancing costs for originators. In addition, mortgage lenders can currently penetrate foreign markets only if they build up the costly infrastructure there to originate mortgage loans, owing to the legal difficulties of transferring mortgage loan portfolios on a cross-border basis. This prevents a higher degree of diversification being achieved by issuing funding instruments backed by pan-European mortgage portfolios.

Investors are confronted with a wide diversity of covered bonds and RMBS structures. Large investors are able to thoroughly analyse and understand markets and carefully select the securities in which they invest. This may be more problematical for smaller investors. Others may limit their considerations to the information provided by credit rating agencies in taking investment decisions. As a result, the desire of investors to diversify might be dampened and, therefore, additional investments might be prevented. This may explain why market liquidity in the secondary markets for RBMSs and covered bonds has remained subdued.

#### SCOPE FOR FURTHER INTEGRATION

Enhancing the transferability of mortgage loan portfolios, in particular at a cross-border level, is key to allowing further innovation to take place, but is currently beset by many obstacles. Legally, the transfer of mortgage loans involves the assignment of the claim and the transfer of collateral. Some jurisdictions require borrowers to be notified of the assignment, which is costly and inefficient for lenders to do, particularly in large-volume transactions. In addition, the transfer of mortgage portfolios affects the rights of the underlying borrower under data

and consumer protection legislation both at EU and domestic levels. The interaction between these rights and the mortgage lender's interests needs to be clarified, particularly in the context of cross-border sales. As regards the transfer of collateral, changes to property rights normally have to be publicly recorded in a land register, which involves an administrative procedure. The length, predictability and cost of these procedures in some Member State jurisdictions may deter mortgage lenders from cross-border sales. Investors would also benefit from easing the legal restrictions on access to credit registers.

A meaningful improvement in cross-border transferability of mortgage loans would require legal action, preferably at the European level, in order to lay down minimum standards for such transfers. However, in view of Member State sensitivities on the subject of property law, European legislation in this area may only be a long term goal.

Improved convergence of standards for cross border securitisation may be more feasible in the short to medium term. With a view to reducing the legal fragmentation in this area, the ECB has indicated that, looking beyond the Commission's Financial Services Action Plan, it sees merits in a strategy of increased harmonisation at the EU level.<sup>105</sup>

The ECB has also contributed to the activities of the European Financial Markets Lawyers Group (EFMLG) in the field of securitisation. Over the past two years, this expert group has examined the legal obstacles to the development of cross-border securitisation in the EU. In its report,<sup>106</sup> the EFMLG concluded that Member States should adopt a certain number of common

<sup>105</sup> In this respect, see ECB Opinion CON/2004/30 of 14 September 2004 at the request of the French Ministry of Economic Affairs, Finance and Industry on a draft decree concerning fonds communs de créances (securitisation funds), and ECB Opinion CON/2004/3 of 4 February 2004 at the request of the Ministry of Finance of the Grand Duchy of Luxembourg on a draft law on securitisation.

<sup>106</sup> EFMLG Report on legal obstacles to cross-border securitisations, 7 May 2007, available on the EFMLG group's website at [www.efmlg.org](http://www.efmlg.org).

principles to ensure a high level of transparency, efficiency and legal certainty with regard to securitisation transactions. As an alternative to full harmonisation, the EFMLG suggests that EU legislation, dealing with certain legal aspects of securitisation, could incorporate those principles. In line with these recommendations, the Commission stated in its White Paper of December 2007 that it envisages the creation of an expert group on securitisation in 2008 with a view to developing an appropriate policy response to these challenges. The ECB supports the Commission's intention to set up such an expert group.

Market-led initiatives can complement and, in some cases, even substitute public regulation. Agreements amongst various stakeholders can lead to efficient standards and business practices.

In this regard, the publication of market statistics at a European level and the publication of reporting guidelines in 2006 by the European Securitisation Forum (ESF) have improved the availability of information. The minimum common standards for covered bonds agreed by the ECBC (see footnote 103) can equally be seen as a preliminary step towards defining the European covered bond universe.

However, there is scope for further improvements in market disclosure and in secondary market liquidity, as also underscored by the recent market turmoil (see Box 1). More harmonisation in the fields of information disclosure on the collateral pool would help the market to develop, as it would support investors in making their assessments. The elaboration of some additional standards on the underlying collateral could also facilitate the creation of cross-border pools. The lack of liquidity during the recent turmoil, especially in the RMBS market and, to a lesser extent, also in the covered bond market, was probably aggravated by the market diversity, which should be addressed to make the market more attractive to investors. In particular, the ECB considers further discussion on the "benchmark approach" to the integration

of European covered bond markets useful and stands ready to facilitate such a debate (see Box 2).

In its recent White Paper, the European Commission announced its intention to further examine, in cooperation with the securitisation industry, whether further measures to improve transparency are necessary from the perspective of the end investors. The ECOFIN conclusions of October 2007 also raised the issues of transparency and valuation of structured financial instruments such as RMBSs. This would be an excellent opportunity for the industry to engage in a discussion about the required level of detail of the data, the cross-country standardisation of the underlying definitions and the storage and access modalities. In view of its competence in the field of European financial statistics, for which common definitions are also essential, the ECB is prepared to provide support and assistance to such work. Of course, reaching an adequate level of transparency would be a highly challenging goal and may only be realised in the long term.

Whatever solution is eventually agreed upon, the confidentiality of the personal data of individual borrowers should be respected, in accordance with the European Data Protection Directive<sup>107</sup>, either by obtaining the borrower's consent to a wider dissemination of his data or by using appropriate statistical techniques to protect data on the borrowers and the location of their property.

107 Directive 95/46/EC (OJ 281, 23 November 1995, p. 31).

## PROBLEMS IN THE AVAILABILITY OF EUROPEAN DATA ON MORTGAGE LOAN PERFORMANCE IN RMBSs

As the recent crisis in the United States sub-prime mortgage market has shown, the credit quality and pricing of RMBSs critically depends on the performance of the underlying mortgage loans used as collateral. Because securitisation markets developed piecemeal across Europe, the quality, consistency and level of detail of the data on the underlying mortgages that are available to investors in RMBSs vary considerably across countries and could be substantially improved. Without aggregate statistics and a sufficiently detailed disclosure of borrower characteristics and the performance of the loans over time, investors cannot accurately assess their credit and prepayment risks.<sup>1</sup> Although, in the past, investors in the triple-A rated tranches normally relied exclusively on rating agencies to monitor credit risk, this is likely to change in the future in the light of the recent turmoil. While the lack of information on mortgage loan prepayments was problematic also before the turmoil, even for triple-A investors, the uncertainty regarding the valuation of RMBSs has now increased, reducing their secondary market liquidity.

In the **United States**, the availability and consistency of the relevant data is considerably higher than in Europe, in particular for the so-called “private label” RMBSs, i.e. RMBSs which are not guaranteed by government-sponsored enterprises. For these transactions, commercial data providers have comprehensive loan-level underwriting data and performance histories for all active and historical mortgage loans. Furthermore, despite the lack of a legal requirement, issuers have reported this information to the data providers for many years. These data include detailed, anonymised information on individual loans and borrowers, such as the type and location of the property, the interest rate charged, and the borrower’s income and profession. With such a large pool of data, investors and market analysts can carry out analyses and simulations of the likely performance of the mortgage loans that back the RMBS. At the same time, it should be recognised that this extensive data availability in the United States did not prevent the crisis in sub-prime RMBSs, although it would probably have been more difficult to value such products without them.

In **Europe**, the relatively low level of disclosure may be due to the smaller size of the market and its relatively late emergence, legal constraints, such as data protection and banking secrecy rules, and less willingness among lenders to share data with their competitors. The main source of information on European RMBSs is the prospectus, which is the document that acts as the legal basis for selling the bonds to investors. In the prospectus, issuers typically provide some aggregate statistics on the characteristics of the underlying pool of mortgages, such as the proportion of certain borrower types or the share of mortgages with different loan-to-value ratios. Furthermore, issuers do not systematically update investors on the performance of these mortgage loans. Although several data providers collect data on mortgage loan performance from European issuers, a large part of the market is not captured and data are mostly aggregated over all mortgage loans in the pool. Furthermore, the structure of the data is often inconsistent, not only among issuers in different countries, but even between issuers in the same country. Issuers use different definitions as to what constitutes a “prime” or a “sub-prime” borrower, how to calculate loan-to-value ratios or when a loan becomes delinquent or is in default.

1 Credit risk results from defaults on the underlying mortgage loans. Prepayment risk results from the fact that the principal of the RMBS is repaid when the underlying mortgages are repaid; thus it is not possible for the investor to know in advance when the bonds will mature. If a bond matures earlier than expected (and in the meantime interest rates have decreased), investors will have earned a lower return than they expected when purchasing the bonds.

The first market-based initiative, led by the European Securitisation Forum (ESF), to improve the availability, consistency and quality of the data, was launched even before the turmoil. The initiative was aimed at data improvements both at the time of the sale and over the lifetime of the transaction, but not yet at a loan-by-loan level. Recently the ESF launched a second initiative, encouraging issuers to disclose loan-by-loan data, although so far only for a specialised, “non-conforming” segment of the UK RMBS market (this comprises, for example, mortgages where the borrower certifies his own income, or where the house is purchased solely for rental purposes). At this stage, it is not clear to what extent the issuers will adopt these voluntary guidelines.

The lack of high quality and consistent data also contributes to the continued fragmentation of securitisation markets in Europe. First, it acts as an obstacle to issuers who want to assemble a multi-jurisdictional portfolio of mortgage loans with similar financial profiles and characteristics. Second, it increases the costs to investors of entering a new market, as understanding the various national definitions and data sources requires significant resources. As a consequence of these drawbacks, mortgage loans are ultimately likely to become more expensive.

## Box 2

### IMPROVING COVERED BOND LIQUIDITY – THE BENCHMARK CONCEPT

The current diversity in European covered bond market is not optimal from a social welfare point of view. In a recent study, the Bank for International Settlements stated that there is only a weak correlation between the broad structure of the legislative frameworks on which bonds are based and their spreads.<sup>1</sup> This would suggest that integration has already been achieved.

However, the study did not include developments that occurred during the recent market turmoil, when significant widening in spreads between covered bonds from different legal frameworks as well as a sharp decline in secondary market liquidity were observed. Market participants attributed this widening in spreads to differences in legal frameworks, underlying cover pools, country risk restrictions and other secondary market features; lack of sufficient information also seems to have played an important role in the drying up of liquidity. This would indicate that there is still a case for harmonisation in the European covered bond markets.

Harmonisation does not necessarily imply adaptation of existing covered bond frameworks. Instead, it could consist of a market initiative leading to the definition of a “benchmark” concept in the covered bond market. This “benchmark” would not replace any of the existing frameworks, but co-exist and complete with them. The concept of benchmark implies that the security would fulfil criteria that have been established in terms of safety, transparency, liquidity, simplicity and price availability. The concept would have to be established by cooperation between the various stakeholders in the covered bond market such as issuers, investors, dealers and, possibly, regulators.

<sup>1</sup> F. Packer, R. Stever and C. Upper (2007), “The covered bond market”, Special Feature, *BIS Quarterly Review*, September, pp. 43-55.

The existence of a covered bond benchmark might attract new investors who cannot afford to investigate the differences in all covered bond frameworks and, therefore, currently refrain from investing into this sector. Further research and an open debate with the various stakeholders on their vision of the future European covered bond market and the impact of the “benchmark” approach on the integration of European covered bond markets would be helpful in assessing more precisely the potential benefits of the concept as well as the ease of its practical implementation.

## 5 CONCLUSIONS

Mortgage markets are an important part of the euro area’s financial system, with the provision of mortgage loans being key retail finance services. At the same time, both the lending and funding markets continue to be fragmented and diverse across countries. Further integration would give economic agents access to a wider set of products, allowing them to share risk more efficiently. This would be beneficial for economic growth.

Some of the obstacles to further integration, like language diversity and different consumer preferences, are natural barriers that are very difficult to remove. However, obstacles that are of a legal, economic or institutional nature can, and should, be addressed by market participants, with the help of policy-makers when necessary. In that respect, the Eurosystem welcomes the various actions that the European Commission has taken over the past years, including the setting out of its policy vision in its recent White Paper. At the same time, and in view of the seriousness of the existing barriers, it has to be recognised that the full integration of these markets is a process that will take many years and will largely depend on market forces.

The Eurosystem strongly supports further integration in mortgage markets. More integration would lead to a euro area-wide availability of a broad range of mortgage products, which would affect the transmission of monetary policy impulses and contribute to a more stable financial system as a result of improved risk diversification. However, the process may equally entail certain risks, such as the possibility of greater asset price

volatility, an increased vulnerability of domestic financial systems to external shocks and excessive competition that results in an erosion of credit standards. Further integration should therefore proceed in a balanced way, duly recognising these risks. The positive effects will depend, inter alia, on the extent to which the integration process results in a more homogenous distribution of mortgage products across countries.

While there may be scope for some targeted legislative action to foster the integration process in mortgage markets, the Eurosystem takes the view that significant progress can mostly be achieved by the actions of market participants. Possible areas are the improvement in transparency and statistics, the promotion of standardised mortgage products across countries, provided that such standardisation does not hamper competition and product innovation, and the development of market benchmarks. Within the scope of its responsibilities, the ECB stands ready to support and assist such market initiatives.

## D. INTEGRATION OF LARGE-VALUE PAYMENT AND SECURITIES TRANSACTIONS: TARGET2, TARGET2-SECURITIES AND CCBM2

*Integrated money and capital markets need to be supported by a well-functioning and integrated market infrastructure. This Special Feature examines how Eurosystem facilities in the field of payment and settlement systems are contributing to progress in this area. Taken together, the recently established TARGET2 platform and the envisaged TARGET2-Securities (T2S) and Collateral Central Bank Management (CCBM2) facilities, once implemented, will establish an integrated euro area market infrastructure for euro-denominated payments, securities settlement, liquidity and collateral management with the highest standards of efficiency and safety. The corresponding benefits for the financial integration process are expected to be substantial.*

## I INTRODUCTION

In carrying out its statutory task of promoting the smooth operation of payment systems, the Eurosystem has the mandate to provide facilities and make regulations to ensure efficient and sound clearing and payment systems.<sup>108</sup> This operational role is complementary to the Eurosystem's oversight and catalytic functions in this area. Although the main purpose of the provision of payment and settlement facilities is the pursuit of the Eurosystem's central banking tasks, the Eurosystem also pays close attention to ensuring that, to the extent possible, the specifications of such services are conducive to supporting the financial integration process. A fully integrated market infrastructure would ensure that all potential market participants are subject to a single set of rules, have equal market access and are treated equally.<sup>109</sup>

The objective of this Special Feature is to review the progress made and envisaged in the integration of the market infrastructure via the provision of Eurosystem facilities, in particular in relation to the handling of payments and securities transactions and collateral operations.

A well-functioning infrastructure of an integrated (collateralised and non-collateralised) money market and capital market provides the participants with, among other things, the possibility of integrated liquidity and collateral management. Ideally, market participants should be able to benefit *inter alia* from (i) a single settlement platform for payments and securities settlement in central bank money; (ii) a single pool of collateral; (iii) a single access point for information on relevant liquidity positions in cash, securities and collateral; and (iv) full integration and interoperability of all relevant market facilities.

The Eurosystem's endeavours to further the integration of market infrastructures should be seen in the context of a wide range of complementary actions being undertaken by various stakeholders. The Eurosystem actively supports the efforts of the European Commission and the banking industry to achieve enhanced integration in the area of post-trading services. In particular, MiFID, the Code of Conduct on clearing and settlement, and the work on the removal of the "Giovannini barriers"<sup>110</sup>, taken together, are expected to support significant progress in this field *inter alia* by fostering a regulatory level playing-field and increasing competition among service providers. These three measures are fully complementary to the Eurosystem initiatives in this field, notably the T2S project and the ESCB-CESR<sup>111</sup> work (see Chart 45).

This Special Feature is structured as follows: In order to provide an overview of the evolutionary process of developing an integrated core

<sup>108</sup> See Article 22 of the Protocol on the Statute of the European System of Central Banks and of the European Central Bank.

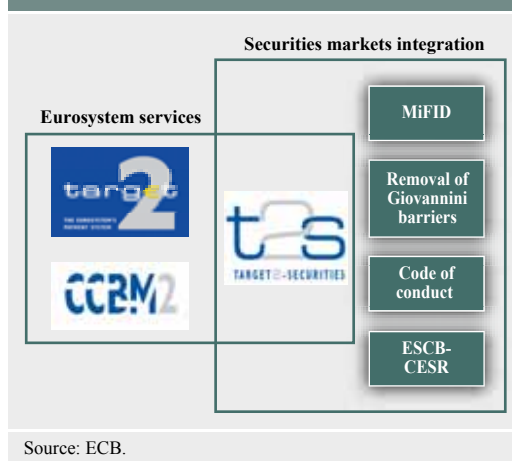
<sup>109</sup> See the ECB's definition of financial integration, as set out in the preface to this report.

<sup>110</sup> The Giovannini barriers refer to 15 key barriers to cross-border clearing and settlement, stemming from differences in market practices, legal, regulatory and fiscal provisions which were identified by the Giovannini Group in 2001. The Giovannini Group, which was chaired by Alberto Giovannini and composed of private sector experts, was an advisory group to the European Commission which was specifically mandated to work on clearing and settlement issues.

<sup>111</sup> Committee of European Securities Regulators. See Chapter III for further information on ESCB-CESR work.



**Chart 45 Eurosystem contribution to market infrastructure development and related initiatives**



market infrastructure for the euro area, Section 2 reviews the situation in the euro area before the introduction of the euro. Section 3 then examines the achievements brought about by the introduction of the Eurosystem facilities for large-value payments, TARGET, and the CCBM for the handling of cross-border collateral deliveries for Eurosystem credit operations. Section 4 examines the Eurosystem's reasons for introducing a second-generation payment system, TARGET2, and describes the significant benefits of the new facility, notably in terms of enabling a more integrated liquidity management. Section 5 discusses the weaknesses still prevailing in collateral handling and post-trading services for securities and explains how these shortcomings will be addressed by the CCBM2 and T2S projects. Section 6 concludes on the combined benefits of TARGET2, T2S and CCBM2 for the establishment of an integrated, well-functioning core euro area market infrastructure and the financial integration process more broadly.

## 2 THE EURO AREA MARKET INFRASTRUCTURE BEFORE MONETARY UNION

During the run-up to the euro, each country of the prospective currency area had its own currency, central bank, monetary policy, money markets and national payment and

settlement infrastructure. The individual market infrastructures typically consisted of one or two payment systems and one or more CSDs. While national markets worked well, cross-border activities were hampered by the lack of common market infrastructures as well as by currency borders. The 1989 Second Banking Coordination Directive had introduced the “single passport” and “remote access”, facilitating competition in national markets through the entrance of foreign participants. However, setting up and running a business in a foreign country proved complex and costly, requiring a strong business case, and therefore often remained limited to a few large institutions.

Since only a limited number of institutions had the necessary resources to work at a multinational level, most cross-border activities were undertaken with the help of different types of agents: correspondent banks, custodians, etc. Cross-border payments were mainly made through correspondent banking arrangements, and foreign securities transactions were settled by custodians. Participation in different national markets required the maintenance of credit lines and/or separate liquidity and collateral pools for each currency or market. In sum, it was very complex and costly to operate actively at a European level.

Against this background, the predecessor of the ECB, the European Monetary Institute (EMI), concluded that the market infrastructure available would not be able to sufficiently support the single ECB monetary policy and the euro money market. Thus, it was decided that the EMI and the NCBs of the then 15 EU Member States would set up facilities for the settlement of large-value euro payments in central bank money and for the cross-border delivery of collateral in Eurosystem credit operations. These facilities were to become known as TARGET<sup>112</sup> and the Correspondent Central Banking Model (CCBM).

<sup>112</sup> Trans-European Automated Real-time Gross settlement Express Transfer system.

### 3 A FIRST GENERATION OF EURO AREA-WIDE INFRASTRUCTURES PROVIDED BY THE EUROSISTEM: TARGET AND CCBM

#### TARGET – FEATURES AND ACHIEVEMENTS

TARGET, the RTGS system for the euro, went live in January 1999 with the introduction of the euro. The initial design of TARGET was based on the principle of minimum harmonisation and on a decentralised architecture, linking together the different RTGS infrastructures that existed at the national level.

TARGET serves all euro area countries. Moreover, since TARGET is also available in some non-euro area EU countries, the central banks of which have joined TARGET on a voluntary basis, the benefits of the system also spill over to those countries. Therefore, TARGET plays an important role in facilitating the wider process of European financial integration.

Since its launch, TARGET has formed a benchmark for processing euro payments in terms of speed, reliability, opening times and service level, and has contributed to the integration of euro area financial markets by providing its users with an area-wide payments settlement infrastructure.

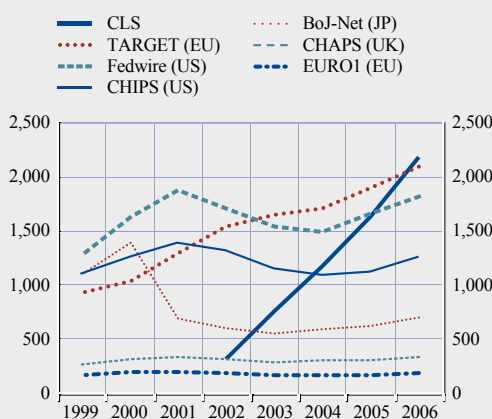
TARGET is mainly intended for the processing of large-value and time-critical interbank payments denominated in euro. More than 50% of all TARGET payments are submitted as customer payments that require urgent execution. The high volume of commercial payments is welcomed from the system owner point of view. Payments that are directly related to monetary policy operations and involve the Eurosystem are settled via TARGET. Cross-border and large-value net settlement systems operating in euro also settle their end-of-day balances via TARGET, as is the case for the majority of retail payment systems and (the cash leg of) securities settlement systems. TARGET is thus the backbone infrastructure for the final

settlement of the large majority of payment and securities transfer systems operating in euro. The open access to TARGET ensures that, in principle, 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, offering a variety of services with different conditions. 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.

Minimum reserves (subject to averaging) held with the Eurosystem can be used in full on an intraday basis for payment purposes in TARGET. In addition, intraday credit is available free of interest, in line with the Eurosystem operational framework, and is only capped by the availability of adequate collateral. There is a large pool of eligible assets for use as collateral both in Eurosystem intraday credit and monetary policy operations. Further flexibility is provided by collateral substitution. This approach ensures easy access to central bank liquidity for all credit institutions.

**Chart 46 Turnover in selected large-value payment systems**

(average daily value; EUR billions)



Sources: Bank of Japan, CHIPS, CLS Services Ltd., EBA Clearing, ECB, Federal Reserve Board.

Since its launch, the payment traffic in TARGET has grown by around 10% every year, both in terms of value and the number of payments.<sup>113</sup>

### THE CCBM – FEATURES AND ACHIEVEMENTS

According to the Statute of the ESCB, all Eurosystem credit operations have to be collateralised by eligible assets. Moreover, the Eurosystem's operational framework stipulates that counterparties can only obtain credit from the NCB in the country in which they are located, and that any Eurosystem counterparty should be able to use any eligible assets issued in any euro area country as collateral. Thus, in the absence of an adequate market arrangement that could serve the purpose of cross-border mobilisation of collateral, a specific mechanism had to be established to enable the cross-border use of collateral, regardless of the location of the asset or the counterparty.

Against this background, the Eurosystem introduced the CCBM in 1999 in parallel with TARGET. At the time that the CCBM arrangement was established the European securities market infrastructures were highly segmented and the network of links between

SSSs in particular was considered incomplete. The CCBM was initially designed as an interim solution, with the expectation that market solutions would develop over time throughout the euro area.

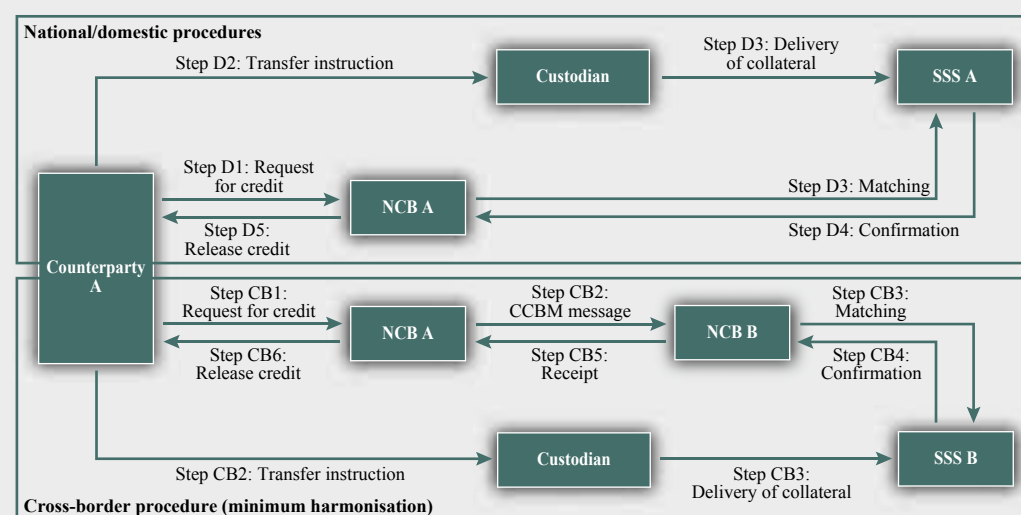
Through the CCBM counterparties obtain credit from their “home central bank” based on collateral provided to another Eurosystem central bank (the “correspondent central bank”). The correspondent central bank holds the collateral on behalf of the home central bank. In the current framework for the delivery of collateral, the CCBM provides for a common cross-border procedure, while national collateral delivery procedures continue to be non-harmonised. CCBM provides collateral delivery services for Eurosystem credit operations, but not for other market activities.

The CCBM has proven to be a success. There has been a constant increase in the cross-border use of assets (see Chart 48).<sup>114</sup> At the end of 1999 around 80% of the collateral put forward

<sup>113</sup> For figures concerning TARGET, see Chapter III.

<sup>114</sup> Data used for the chart were taken as a snapshot at the end of each month.

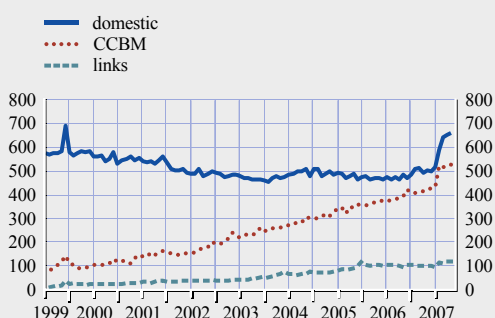
Chart 47 The current framework for the delivery of collateral



Source: ECB.

**Chart 48 Evolution in the value of collateral transferred by the counterparties for Eurosystem credit operations**

(EUR billions)



Source: ECB.

by counterparties for Eurosystem credit operations was delivered at the domestic level (i.e. the assets used as collateral and the counterparty using these assets were located in the same country), whereas only 20% was delivered cross-border. Eight years later, the latter figure has increased to slightly over 50%.<sup>115</sup> This trend corroborates not only the growing integration of the euro banking and financial markets but also the key role the CCBM played, and continues to play, in this process.

The CCBM aims only at complementing market-based solutions and does not present any obstacles to their development. However, although the use of links between SSSs has continuously increased during the past eight years, these links play a secondary role when compared to the CCBM. During 2006 some 79% of cross-border operations were channelled via the CCBM, while the share of collateral transferred via links amounted to 21%.

#### THE INTERPLAY OF THE WHOLESALE INFRASTRUCTURE

Both TARGET and CCBM have made a substantial contribution to the successful introduction of the euro and the subsequent smooth functioning of the euro financial system. They represent historical milestones in, and unique examples of, the creation of a common

market infrastructure for a group of countries and their financial communities united by a single currency.

TARGET has provided the integrated infrastructure required by the integrated non-collateralised market. The CCBM in turn has provided an invaluable contribution to the functioning of the Eurosystem collateral framework and has strongly supported the delivery of collateral to the Eurosystem for both intraday credit and monetary policy operation purposes. It has also allowed for further portfolio diversification in enabling the use of any eligible asset as collateral with any Eurosystem component.

#### 4 THE FIRST STEP TOWARDS A SECOND-GENERATION MARKET INFRASTRUCTURE: TARGET2

##### OBJECTIVES OF TARGET2

In response to the growing demand from financial institutions for more advanced and harmonised payment and settlement services across Europe, the Eurosystem decided in October 2002 to start the development of a new and enhanced version of TARGET, TARGET2, and thus to move from a “system of systems” to a single shared platform (SSP) system.<sup>116</sup> In legal terms, TARGET2 remains a decentralised system as each central bank retains full responsibility for the business relations with its participants. In order to avoid level playing field concerns, and in line with the principle of full functional harmonisation, the rules of the different TARGET2 legal systems are harmonised to the greatest possible extent.

Although the market segment for large-value and urgent euro payments has already reached a high level of streamlining and consolidation,

<sup>115</sup> It is important to note that the observed trend from the use of domestic collateral towards cross-border collateral was broken in July 2007, when the financial market turmoil began to affect the euro area.

<sup>116</sup> The platform is operated by the Deutsche Bundesbank, the Banque de France and the Banca d'Italia.

TARGET2 introduces an even more uniform wholesale payment infrastructure by means of the single technical platform. TARGET2 is also expected to further improve the degree of integration of wholesale payments by providing its participants with a harmonised service level, a single price structure that applies to both domestic and cross-border transactions, and a harmonised set of cash settlement services in central bank money for all other systems settling their balances in TARGET.

### **MIGRATION TO TARGET2**

On 19 November 2007 TARGET2 was successfully launched with the connection of the first migration group which comprised the NCBs and the respective national user communities in Austria, Cyprus, Germany, Latvia, Lithuania, Luxembourg, Malta and Slovenia. Immediately afterwards some ancillary systems moved their settlement to TARGET2. The second group of countries (Belgium, Ireland, Spain, France, the Netherlands, Portugal and Finland) migrated to TARGET2 on 18 February 2008. The third and final group (Denmark, Estonia, the ECB, Greece, Italy and Poland) will migrate on 19 May 2008.

### **HOW TARGET2 WILL FACILITATE INTEGRATION**

One of the major benefits of TARGET2 will be to allow banks to further integrate their liquidity management.

Bank treasury managers have a strong interest in more automated processes to optimise payment and liquidity management. They need appropriate tools to track activity across accounts, and to make accurate intraday and overnight funding decisions preferably from a single location, e.g. the head office. In the TARGET environment multi-country users had to maintain a large number of technical communication interfaces with TARGET, but TARGET2 processes all payments on a single technical platform. TARGET2 users have equal access, via the information and control module, to comprehensive online information and easy-

to-use liquidity control features commensurate with their business needs.

TARGET2 participants have the possibility to control the use of the available liquidity by means of a reservation and limit system which can be combined according to individual needs. They may reserve liquidity for urgent and highly urgent payments as well as dedicate liquidity for the settlement of ancillary systems. Furthermore, participants are able to define bilateral and multilateral sender limits and to actively manage their payment queues (e.g. by changing the priority or the order of queued transactions). Owing to the increased time criticality of payments, the submission of timed transactions, such as those needed in the context of the Continuous Linked Settlement (CLS) system, has been made possible.

Furthermore, banking groups are in a position to use a liquidity pooling functionality to view or use the liquidity of all accounts belonging to the various entities in the group.<sup>117</sup> Liquidity pooling is achieved by grouping a number of accounts. Within a group of accounts, group pricing applies, meaning that a transaction fee based on a sliding scale applies to all payments of the group as if they were sent from one account. In addition, TARGET2 brings benefits to its users in terms of consolidated account information. Whereas in the past it was not possible for an institution's head office to see the information on balances being held across its various branches in different countries, with TARGET2 it can automatically monitor and process all of its data from a centralised location.

To a very large extent, ancillary systems have access to any account in TARGET2 via a standardised interface. This allows TARGET2 participants to settle balances stemming from

<sup>117</sup> This is, however, only true for participants who have access to intraday credit (i.e. the service is not available to remote participants or to participants located in non-euro area countries).

any ancillary system (settling in TARGET2) in which they participate in one RTGS account.<sup>118</sup>

The trend among the users of wholesale payment services points towards the centralisation of business operations. In principle, the centralisation of payment business is expected to provide these users with 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.

The new functionalities of TARGET2 enable its users, in particular the multi-country ones, to make advances in the consolidation of internal functions such as treasury and back office functions, and to better integrate their euro liquidity management.

## 5 INTEGRATING LARGE-VALUE PAYMENTS, SECURITIES SETTLEMENT AND COLLATERAL HANDLING: CCBM2 AND T2S

### THE SECOND-GENERATION EUROSISTEM COLLATERAL MANAGEMENT FACILITY

Within the CCBM the Eurosystem's counterparties have to deal with different communication interfaces and procedures, since not all the NCBs have implemented the same level of automation, the same communication protocol or exactly the same operational rules to process counterparty instructions. Against this background market participants have expressed concerns related to (i) the non-homogeneous degree of automation across central banks, (ii) the differences between domestic and cross-border procedures, and (iii) the resulting lack of standardisation which prevents in particular multi-country players from having a centralised collateral management.

The identified drawbacks led the Governing Council of the ECB to decide in March 2007 to review the current Eurosystem collateral management handling procedures and to create a new collateral management system for the

Eurosystem, called CCBM2. The usage of CCBM2 is intended to be optional for the Eurosystem central banks and will thus operate in parallel to CCBM. Therefore, CCBM2 will be designed in a modular way, in order to allow for flexible use by those central banks wishing to abandon their old system in favour of CCBM2.

CCBM2 will substantially increase the efficiency of the collateral management of Eurosystem central banks. It will first and foremost provide a harmonised level of service, thus facilitating interaction between the Eurosystem central banks and their counterparties. In terms of scope, CCBM2 goes beyond the current CCBM arrangement. While the CCBM was built for the cross-border use of collateral only, CCBM2 will provide a single set of uniform procedures both on a domestic and on a cross-border basis. However, like CCBM, it is only envisaged for use in Eurosystem credit operations.

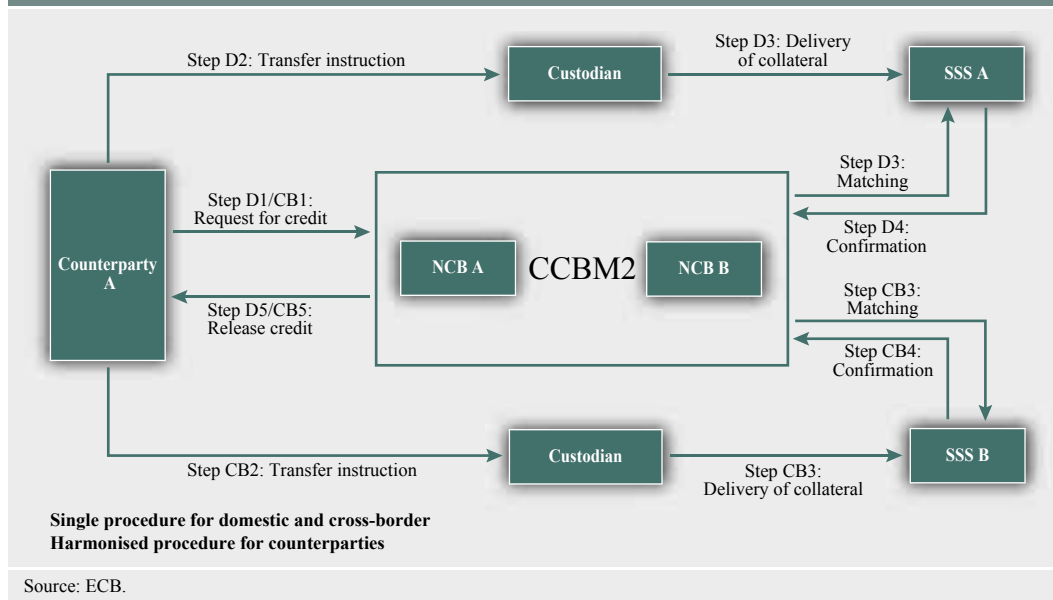
CCBM2 will handle all eligible assets. It will consequently cater to securities and also incorporate a function facilitating the use of credit claims as collateral. Furthermore, CCBM2 will support the two currently used collateralisation techniques (pledge/pooling and repo/earmarking) and will be able to accept collateral through all eligible SSSs and the eligible linkages between them and collateral management services. As a result it will offer a single and standardised collateral management system, covering all necessary functions needed to release central bank money on a real-time basis to all Eurosystem counterparties.

CCBM2 will enable NCBs to rationalise their internal collateral processes while preserving the decentralised nature of NCBs' relations with counterparties, i.e. regarding the contractual relationship, accounting and access to credit. It will be based on existing central bank collateral

<sup>118</sup> While there are currently some 66 ancillary systems, each of which used to settle in its own way, TARGET2 offers six generic procedures for settlement (two real-time procedures and four batch procedures), thus resulting in a substantial harmonisation of settlement practices.



Chart 49 CCBM2 – Single procedure for domestic and cross-border use of collateral



management systems, such as that of the Nationale Bank van België/Banque Nationale de Belgique and De Nederlandsche Bank. Users will benefit in particular from the fact that they will have a single communication tool with the Eurosystem, with standardised interfaces and messages. CCBM2 will therefore be in full compliance with the initiatives undertaken to remove Giovannini Barrier One, which are aimed at the harmonisation of communication protocols by 2011. CCBM2 will also be fully compatible with TARGET2 and T2S, in particular with the envisaged communication interface and settlement procedures of T2S for the delivery of securities and the already existing TARGET2 interface for payments.

While CCBM2 is first and foremost a collateral management facility for the Eurosystem (a “single Eurosystem back-office”), it will at the same time bring new opportunities for Eurosystem counterparties to reduce back-office complexity and cost and to optimise their collateral and liquidity management with the Eurosystem. By harmonising procedures related to the Eurosystem credit and collateral management, it will also create a level playing field. In order to ensure that CCBM2 is fully in

line with the needs of counterparties, the Eurosystem is developing this new facility in close cooperation with market participants.<sup>119</sup>

#### COMPLETING THE CIRCLE: INTEGRATED SECURITIES SETTLEMENT IN CENTRAL BANK MONEY

Two trends describe developments in the European securities settlement infrastructure over the past decade. On the one hand, there has been considerable progress in integrating settlement systems at the national level, resulting in improved efficiency. In most EU countries, there is now just one settlement platform for all types of securities. On the other hand, however, inefficiencies resulting from fragmentation and lack of harmonisation make the processes of cross-border securities settlement significantly more complex and costly than domestic settlement.

Cross-border company mergers have resulted in CSDs being brought under common ownership in some countries. These mergers have the

<sup>119</sup> For more information on the CCBM2 project, see <http://www.ecb.europa.eu/paym/coll/coll/ccbm2/html/index.en.html>.

objective of integrating settlement platforms, but so far progress has been limited and slow. This illustrates the difficulties faced by independent and competing organisations to effectively coordinate solutions across multiple countries involving many different participants. Thus, nine years after the introduction of the euro, the euro area still lacks an efficient, integrated securities infrastructure that would support the operation of a single financial market. There is widespread consensus that more needs to be done to improve this situation at the cross-border level.

A first step in this regard has been taken with the implementation of TARGET2. As set out above TARGET2 will, for the first time, provide a single technical infrastructure that enables market participants to pool their euro liquidity across different countries. In addition, TARGET2 offers a range of six standardised procedures for the settlement of ancillary systems, including securities settlement systems. This will make it possible to bring together the payments associated with securities settlement across multiple CSDs. However, TARGET2 has no tool designed for the handling of securities, and therefore does not provide for the settlement of securities in central bank money by means of simultaneous bookings in both cash and securities accounts. Nor does TARGET2 improve the high degree of fragmentation of the present securities infrastructure composed of multiple securities settlement engines in the various CSDs.

Against this background, T2S is the Eurosystem's proposal to facilitate integration in the European post-trading settlement infrastructure. The concept is currently being discussed with the market; a final decision is expected to be taken by the Governing Council in mid-2008. T2S will be a technical platform for CSDs for the settlement of euro securities in central bank money, thereby bringing together securities and cash settlements within Europe on an efficient single platform. In particular, T2S will, on a technical level, remove the differences between conducting domestic and cross-

border settlement within Europe and will act as a catalyst for the integration of the European post-trading financial sector. It will also foster enhanced competition and harmonisation in post-trading by providing equal and less costly access to a common settlement service. Through the single platform, economies of scale can be fully exploited, while at the same time the safe and smooth settlement of securities transactions in central bank money is ensured. T2S will not affect the ability of banks and CSDs to offer securities settlement in commercial bank money.

Since the problems of fragmentation and inefficiency not only concern the euro area but are relevant for the EU as a whole, and some securities settlement systems serve both euro area countries and other EU countries, T2S will be designed in such a way that it can also provide settlement in other EU currencies where there is market demand for such a service and provided that the relevant NCB is prepared to enable settlement in its currency.

With a view to realising the maximum benefits for the market, the Eurosystem will design the T2S technical platform so as to fully exploit the possible synergies with the TARGET2 system. T2S will therefore draw on the existing technical architecture designed for TARGET2, including fully scalable system components and state-of-the-art business continuity models. Moreover, T2S will share a common communication interface with TARGET2. Four NCBs (Banco de España, Banque de France, Banca d'Italia and the Deutsche Bundesbank) are ready to develop and operate T2S on behalf of the Eurosystem.

The potential positive effects of T2S are manifold and affect a wide range of users. In addition to the benefits referred to above, they include inter alia the following.

The settlement of cross-border securities transactions will be as efficient as domestic settlement. All markets may operate in real time under the same settlement engine, thus allowing a faster reuse of securities and central

bank money. This will be achieved by bringing together the securities accounts of multiple CSDs (as well as the dedicated sub-cash accounts of NCBs) on a single platform shared with TARGET2. The bookings for the transfer of securities between participants of different CSDs can all be made simultaneously, together with the cash movements. This eliminates the current highly complex processes of interactions between various platforms, which are costly and often not synchronised, entailing delays and posing a risk of failure to achieve settlement finality (the shortcomings responsible for the current unattractiveness of CSD links). T2S will also automate the realignment process between CSDs on a real-time basis without having to use additional, often costly, procedures. A reduction in the number of settlement engines will reduce CSD infrastructure costs on the one hand and the number of interfaces needed by market participants on the other. This factor may be expected to benefit the back office development of both providers and users and decrease the ongoing running costs.

Competition in post-trading will be fostered by pooling all securities that settle in central bank money in a single settlement platform accessible via multiple CSDs. At the same time, a decentralised structure will be maintained with CSDs remaining responsible for managing their legal and business relationships with intermediaries, investors and issuers and for handling corporate actions, including ensuring their compliance with regulatory requirements and providing custody and asset-servicing. T2S will encourage CSDs to offer their participants the opportunity, if they choose, to centralise their securities holdings in one place. This will depend on the readiness of CSDs to hold securities issued in other CSDs, although it should be noted that CSDs will have an incentive to do so in order to improve their competitive position.

T2S will propose the same pricing for domestic and cross-border settlements. Significant economies of scale in T2S will provide the potential for a substantial decrease in settlement

costs on average. This will be the case for cross-CSD settlement in particular. Moreover, by de facto introducing standardised euro area-wide settlement, T2S will significantly contribute to the momentum for further harmonisation in the financial markets.

Issuers may potentially reach a much wider set of participants while continuing to use the same CSD they are using today (and with the presently existing procedures under local legal and tax regimes). This effectively makes the European financial market a domestic market. In addition, it will increase the attractiveness of securities, which are currently marginalised because of their national nature, by making them available throughout the European financial market.

Users will have the possibility of choosing one CSD as their preferred access point to T2S. They will only need to maintain a single account with a single CSD to settle any euro security issued in Europe with any other user. This will bring increased competition to current national markets and allow for reduced interface costs. At the same time, users will have the possibility of pooling central bank money and securities in a single platform, thus reducing liquidity and collateral needs and lowering the corresponding funding costs.

Investors will obtain cheaper access to non-local securities, which today requires prohibitive cross-border settlement procedures, and will therefore benefit from greater opportunities to diversify their portfolio. In addition, institutional investors are likely to benefit from lower fees to access different markets, since infrastructure costs represents a significant share of the fees they pay to their custodians.

Finally, the Eurosystem and its counterparties will also benefit from T2S in terms of improved collateral management. With cross-border deliveries becoming as efficient as domestic ones, a new generation of collateral handling procedures could be implemented. For example, while CCBM2 will allow market participants to have a single communication window with the

Eurosystem collateral management service, T2S will allow the CCBM2 platform to have a single communication window with all CSDs in T2S for the handling of collateral transactions.

T2S is a European project and is taken forward by the Eurosystem acting in close cooperation with market participants. Stakeholders are strongly involved in defining the comprehensive user requirements as part of the current T2S governance structure. It is envisaged that T2S will become operational by 2013.

## 6 CONCLUSIONS

While TARGET and the CCBM enabled euro area-wide settlement in central bank money of individual transactions and the cross-border delivery of collateral to the Eurosystem, they represented only first-generation systems in the sense that they did not allow market participants to manage their cash, collateral and securities positions in an integrated way.

Building on the new centralised technical infrastructure of TARGET2, and drawing on the experience gained in its development and operation, the Eurosystem is currently working to establish integrated solutions also in the fields of securities settlement (T2S) and Eurosystem collateral management (CCBM2), which are intended to fully exploit the synergies with TARGET2 and with each other. The new services are complementary. While CCBM2 provides for “a single Eurosystem back-office” for eligible assets (including credit claims), T2S provides a single settlement platform for all securities (including equities). The single interface to T2S will replace the interfaces to all CSDs eligible in Eurosystem collateral operations for CCBM2. CCBM2 again supports auto-collateralisation services in T2S. As a result, the settlement of euro-denominated payments and securities transactions in central bank money and the management of euro-denominated collateral are expected to become fully integrated. Thus, TARGET2 has provided both the trigger and the enabler of new European integration initiatives.

Besides the individual advantages of TARGET2, T2S and CCBM2, the three together are expected to provide for significant combined benefits. There will for the first time be an integrated, safe and efficient core market infrastructure providing harmonised services for large-value payment, securities and collateral transactions. Each type of service will be offered on the basis of a single application concept. This will allow economies of scale to be exploited, thereby reducing costs and the corresponding fees charged to participants. Market participants will no longer need to maintain separate liquidity and central bank collateral pools for different national markets and multiple communication interfaces for settlement purposes. A key synergy gain will be the ability of market participants to move to a single communication window with the Eurosystem. This communication window will provide participants with real-time information on their liquidity positions in all three services. This will allow participants to integrate and consolidate their treasury management and to simplify and harmonise back-office functions and procedures. At the same time it will be much easier for overseas investors to manage their euro portfolio, thereby increasing the attractiveness of European financial markets.

Thus, with the three new services, it will become possible to largely satisfy the conditions for an integrated and well-functioning market infrastructure as laid out in the introduction to this article. Nevertheless, while the advancements facilitated by the Eurosystem’s services are very important, other interrelated public and private sector initiatives must be pursued with determination as well. For example, progress in the harmonisation of other infrastructure features and market practices by market participants and the removal of legal and fiscal barriers to integration is of utmost importance. In this respect, the Eurosystem strongly supports the work initiated by the European Commission. More generally, a wide-ranging harmonisation of the current market practices associated with the use of the securities infrastructure is essential to reap all potential benefits stemming from the

use of the single platforms for settlement and collateral management.

Taken together, TARGET2, T2S and CCBM2, once implemented, will represent a great step forward in terms of the quality of euro area core infrastructure services and financial integration. For the first time, an integrated euro area market infrastructure for euro-denominated payments, securities settlement and liquidity and central bank collateral management will be available, allowing market participants, issuers and investors to operate throughout the euro area on a single interface basis. This will simplify access to infrastructure services, permit better management and control of transaction flows, avoid the need to maintain multiple liquidity, securities and central bank collateral pools, lower operational cost and allow new business opportunities to be exploited. The co-existence of the three services will inevitably also impact the other two components of the financial system – markets and institutions – which will operate in a much more integrated way.



## CHAPTER III

### EUROSYSTEM ACTIVITIES FOR FINANCIAL INTEGRATION

*The Eurosystem generally distinguishes between four types of activity through which it contributes to the enhancement of financial integration: (i) giving advice on the legislative and regulatory framework for the financial system and direct rule-making; (ii) acting as a catalyst for private sector activities by facilitating collective action; (iii) enhancing knowledge, raising awareness and monitoring the state of European financial integration; and (iv) providing central bank services that also foster European financial integration. The following sections provide an overview of the Eurosystem's contributions in these areas, focusing on the initiatives pursued during 2007.*

#### I LEGISLATIVE AND REGULATORY FRAMEWORK FOR THE FINANCIAL SYSTEM

While the Eurosystem considers financial integration to be first and foremost a market-driven process, the legislative and regulatory framework for the financial system plays an important facilitative role. With a view to supporting the efficient and effective conduct of cross-border financial activities, the EU framework should be aimed at lowering legal or regulatory impediments and at providing a level playing field.

Against this background and in line with their advisory and regulatory functions,<sup>1</sup> the ECB and the Eurosystem monitor and actively contribute to the development of the EU legislative and regulatory framework.

More specifically, the ECB and the Eurosystem provide input for strategic policy reflections, such as on the overall EU financial services policy strategy or the further development of the EU institutional framework for financial regulation and supervision, for example via the publication of common Eurosystem position papers on the websites of the ECB and of Eurosystem NCBs or informal contributions

to the discussions of the relevant regulatory and supervisory committees. Furthermore, the ECB and the Eurosystem provide both formal opinions and informal input for the development of new Community legislation in the area of financial services. They may also contribute to the ex post technical evaluation of regulatory measures.

During 2007 the respective activities of the ECB and the Eurosystem related in particular to the following issues.

#### EU ARRANGEMENTS FOR FINANCIAL REGULATION AND SUPERVISION

The effective and efficient functioning of the EU regulatory and supervisory framework has been a major EU financial services policy issue in recent years. The growing pace of financial integration and the rising prominence of cross-border financial groups, which are also increasingly characterised by a high degree of functional integration across borders and legal entities, point to the need for enhanced cross-border supervisory convergence and cooperation.

The importance of progress in this area stems from two main considerations. First, differences in prudential requirements and approaches and overlapping policy measures should be reduced as far as possible in order to streamline the supervisory interface for financial institutions active on a cross-border basis and to ensure a level playing field across the EU. Eventually, this convergence process should establish a harmonised supervisory setting in line with the single market objective.<sup>2</sup> Second, information-sharing and coordination between home and host authorities should be

1 The ECB is to be consulted, within its fields of competence, on any Community act or any draft legislative provision proposed by national authorities. Furthermore, the ECB has the right to issue regulations in certain areas, for example in the fields of payment systems and statistics.

2 According to the ECB's definition of financial integration set out in the preface to this report a market for a given set of financial instruments or services is fully integrated if all potential market participants in such a market are subject to a single set of rules, have equal market access and are treated equally.



further strengthened to ensure that potential financial vulnerabilities in cross-border financial institutions are adequately monitored and addressed.

In order to achieve the heightened degree of supervisory convergence and cooperation, improvements are required both at the regulatory and the supervisory level. As regards the former, prudential rules adopted at EU level should foster the closer convergence of national rules and provide an adequate regulatory framework for enhanced home-host authority cooperation. As regards the latter, supervisors should work to achieve the consistent implementation of the enhanced EU rules in closely convergent supervisory requirements and day-to-day practices.

The extension of the Lamfalussy framework<sup>3</sup> for financial regulation and supervision to all financial sectors,<sup>4</sup> coupled with improvements in the regulatory framework for the interaction between home and host authorities,<sup>5</sup> were designed to establish an appropriate institutional framework to foster adequate progress in these areas. In view of the significance and the innovative character of the enhanced EU regulatory and supervisory framework, its effective implementation and smooth functioning have been closely monitored.

Building on some earlier assessments,<sup>6</sup> a first full review of the Lamfalussy framework across financial sectors was carried by ECOFIN at its meeting on 4 December 2007. In forming its view, ECOFIN took into account the assessments of various EU institutions and fora, such as the Inter-Institutional Monitoring Group, the Commission, the European Parliament and the Lamfalussy level 3 committees. In addition, the Eurosystem, which has actively supported the establishment of the Lamfalussy approach from the outset and has been closely involved in its continuous monitoring,<sup>7</sup> published a contribution to the 2007 review of the Lamfalussy framework, focusing on the banking sector.<sup>8</sup>

There is broad agreement among the various EU bodies that the Lamfalussy framework has significantly increased the efficiency and effectiveness of financial regulation and supervision in the EU. At the same time, a number of improvements seem warranted at all levels of the Lamfalussy framework to ensure that its full benefits are reaped in an effective and timely manner. Key areas for further enhancement include (i) increased regulatory convergence, notably in connection with a reduction in national options and discretions in EU directives; (ii) strengthened means for level 3 committees to fulfil their tasks in fostering supervisory convergence and cooperation; and (iii) further improvements

3 With the objective of rendering the EU's legislative decision-making process more efficient and flexible, and of ensuring a more consistent regulatory and supervisory framework across Member States, the Lamfalussy framework provides for four levels of financial services legislation. At level 1 the basic principles of the legislation are laid down via the normal legislative process. At level 2 implementing measures for level 1 legislation are adopted. This process benefits from the input of a special regulatory committee comprising the relevant national and European authorities. Level 3 encompasses initiatives by national supervisors to ensure a consistent and timely implementation of level 1 and level 2 measures at the national level; this process is assisted by a committee of supervisors. 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.

4 The directive extending the Lamfalussy committee structure from the securities sector to the areas of banking, insurance and investment funds (Directive 2005/1/EC) was adopted on 9 March 2005.

5 Several measures adopted under the FSAP have stepped up the requirements for home-host authority cooperation, such as Capital Requirements Directive (CRD), the Transparency Directive, the Markets in Financial Instruments Directive, the Market Abuse Directive, the Prospectus Directive and the Financial Conglomerates Directive.

6 These included in particular the Report on Financial Supervision of the Financial Services Committee (FSC) which was finalised in February 2006 and endorsed by ECOFIN in May 2006; the European Commission's "White Paper on Financial Services Policy 2005-2010", published in December 2005; and the two interim reports of the Inter-Institutional Monitoring Group (IIMG), which were issued in March 2006 and January 2007 respectively. All of these assessments pointed to a number of measures to improve the practical functioning of the Lamfalussy process (see the 2007 ECB report "Financial Integration in Europe", pp. 39 ff., for further information on these recommendations).

7 Previously, the Eurosystem provided contributions to the preparation of the Commission's White Paper and the FSC's Report on Financial Supervision.

8 "Review of the Lamfalussy framework. Eurosystem contribution", available at <http://www.ecb.europa.eu/pub/pub/prud/html/index.en.html>

in the supervision of cross-border groups. Moreover, the Eurosystem has emphasised the need for effective information sharing between supervisors and central banks, given the important responsibilities of central banks in ensuring the orderly functioning of money markets, in promoting the smooth operation of payment systems, and, more generally, in helping to safeguard financial stability.

ECOFIN is expected to review the progress made in strengthening the Lamfalussy framework at its informal meeting in April 2008.

#### **EU FRAMEWORK FOR CROSS-BORDER M&A**

On 5 September 2007 Directive 2007/44/EC of the European Parliament and of the Council as regards procedural rules and evaluation criteria for the prudential assessment of acquisitions and increase of holdings in the financial sector was adopted.<sup>9</sup>

The main aim of the Directive is to specify the prudential criteria to be considered by supervisors when assessing the suitability of a prospective qualifying shareholder in an EU credit institution, securities firm or insurance company, such as to ensure a consistent implementation of the respective provisions across Member States and to enhance the overall transparency and efficiency of the approval process. It forms part of a wider strand of work to enhance the fiscal, legal and prudential framework for cross-border M&A operations in the EU.<sup>10</sup>

The ECB contributed to the development of the enhanced prudential framework via its formal Opinion on the Commission's original proposal for the Directive.<sup>11</sup>

The amending Directive needs to be implemented by EU Member States before 21 March 2009.

#### **INTEGRATION OF EUROPEAN MORTGAGE MARKETS**

The integration and development of European mortgage markets is relevant for the ECB's

major tasks that are related to the transmission and implementation of the single monetary policy and to its contribution to the safeguarding of financial stability. As the ECB financial integration indicators also show, there is further room for enhancement of the integration of European mortgage markets.<sup>12</sup>

The European Commission also stressed further integration and development of European mortgage markets as a key priority in its White Paper on the EU financial services policy during the period 2005-2010. It developed its vision for moving forward in this field in a Green Paper on mortgage credit in 2005.<sup>13</sup> Following up on a public consultation, the Commission specified its strategy in a White Paper<sup>14</sup> issued in December 2007.

The ECB continued its own analysis of the further integration and development of European mortgage markets during 2007 as well, also liaising closely with the Commission. The outcome of the ECB analysis is contained in C Special Feature C in Chapter II of this report.

#### **SECURITIES CLEARING AND SETTLEMENT SYSTEMS**

Financial market integration needs to be complemented and supported by the integration of the underlying infrastructures for securities transactions. While the European post-trading market structure is evolving, it is still fragmented and has not yet reached the level of efficiency, integration, and soundness that would be

<sup>9</sup> Directive 2007/44/EC of the European Parliament and of the Council of 5 September 2007 amending Council Directive 92/49/EEC and Directives 2002/83/EC, 2004/39/EC, 2005/68/EC and 2006/48/EC as regards procedural rules and evaluation criteria for the prudential assessment of acquisitions and increase of holdings in the financial sector ("the amending Directive") (OJ L 247, 21.9.2007, p.1).

<sup>10</sup> The Special Feature on "Strengthening the EU framework for cross-border banks" in the 2007 ECB report "Financial Integration in Europe" provides an overview of the respective policy initiatives.

<sup>11</sup> CON/2006/60 of 18 December 2006.

<sup>12</sup> See Charts C32 to C34 in the annex.

<sup>13</sup> "Green Paper on Mortgage Credit in the EU", COM(2005) 327, 19 July 2005.

<sup>14</sup> "White Paper on the Integration of EU Mortgage Credit Markets", COM(2007) 807, 18 December 2007.

compatible with the requirements of the Single Market and the single currency.<sup>15</sup>

Among the public sector initiatives aimed at an efficient, safe and integrated post-trading market infrastructure in the EU, the main contributions of the Eurosystem in 2007 were to the Code of Conduct for Clearing and Settlement, to the removal of the Giovannini barriers, and to the work on the ESCB-CESR standards.

*The Code of Conduct for Clearing and Settlement*, signed by the European industry associations for exchanges and post-trading infrastructures in November 2006, is an initiative that will have a bearing on the entire trading and post-trading infrastructure. The Code is essentially aimed at allowing users to choose freely their preferred service provider at each layer of the transaction chain. To this end, the Code provides for commitments by the signatories within three areas: price transparency, access and interoperability, and service unbundling and accounting separation. The price transparency commitments and access and interoperability commitments entered into effect in December 2006 and in June 2007 respectively. The deadline for service unbundling was January 2008.

The ECB participates in the Monitoring Group for the Code (MOG), which organises regular meetings with infrastructure providers and representatives of the user community. The MOG met four times in the course of 2007. Overall, it concluded that significant steps had been taken by the industry to implement the commitments.

As regards price transparency, good progress has been made towards the majority of the commitments (publication of prices, services, discount and rebate schemes, billing reconcilability). The “Conversion Table” prepared by the European Central Securities Depository Association (ECSDA) provides an important tool for price comparison. However, there is scope for further refinement of the Table to improve price transparency.

With regard to access and interoperability, the MOG welcomed the “Access and Interoperability Guideline” prepared by the industry on the general principles of the Code. Since the adoption of the Guideline in July there has been significant demand for links between infrastructures. The MOG will continue the close monitoring of progress in implementing requests for links.

Finally, the Commission drafted Terms of Reference specifying the details of the Code’s external audit procedure. The next steps in 2008 will focus on analysing the possible extension of the Code to other asset classes, such as fixed income securities and derivatives.

Establishing freedom of choice ultimately requires, in addition to the Code, the full removal of the existing barriers to the efficient clearing and settlement of securities. The first Giovannini Report of 2001 identified 15 *Giovannini barriers* to integration in EU post-trading systems. These relate to technical standards and market practices, legal uncertainty, and differences in tax procedures. The second Giovannini report of 2004 set out a strategy for removing these barriers. The technical and market practice related barriers are addressed within the context of the Clearing and Settlement Advisory Monitoring Expert Group (CESAME). The fiscal barriers are addressed by the Fiscal Compliance expert group (FISCO), while the Legal Certainty Group is working on the legal barriers.

The ECB is closely involved in the work aimed at removing the Giovannini barriers via its participation in CESAME and the Legal Certainty Group.

The Legal Certainty Group released its first advice paper in July 2006, concluding that legislation would be needed in certain areas to effectively dismantle legal barriers. Since

<sup>15</sup> See H. Schmiedel and A. Schönenberger (2005), “Integration of securities market infrastructures in the euro area”, ECB Occasional Paper No. 33, July, and the discussion on the state of integration in bond and equity markets in Chapter I.

then, the Group has set up three sub-groups to investigate the need for legislation on book entries on securities accounts, the differences in national legal provisions affecting the processing of corporate actions, and the restrictions on an issuer's ability to choose the location of its securities.

In 2007, a number of market associations raised concerns about the slow progress in removing the Giovannini barriers related to differences in fiscal procedures and national securities laws. In these areas, new legislation will be needed to effectively eliminate certain barriers. The ECB shares these concerns and considers that the swift removal of all Giovannini barriers will also greatly benefit the other public initiatives for the further development and integration of the European securities market infrastructure (in particular the Code of Conduct and T2S).

Finally, in order to promote closer convergence of national securities clearing and settlement systems towards the highest standards of safety and efficiency, the ESCB and the CESR have since 2001 worked together to develop the *ESCB-CESR standards* for the EU SSSs. A first draft of the standards, which builds on the CPSS-IOSCO recommendations for SSSs and adapts them to the specific features of the EU environment, was issued for public consultation in September 2004. The standards, once finalised, would complement the Code of Conduct, given that the latter does not cover prudential aspects and would therefore not contribute to an enhanced regulatory level playing field. Furthermore, several of the envisaged standards would support the objective of the Code to achieve greater price transparency and interoperability.

In November 2006, ECOFIN asked the European Commission to review the efficiency, integration and safety of the European post-trade industry, including reconsidering the standards. The Commission has equally called for the completion of the work on the standards.<sup>16</sup> On 20 June 2007 Commissioner McCreevy advised the CESR to conclude those standards applicable

only to international central securities depositories (ICSDs) with a banking license and CSDs and not to custodian banks. The scope of the standards would then be identical to that of the Code. The ECB concurs with the Commission's view and stands ready to cooperate with the CESR in order to introduce the necessary amendments for a timely completion of this work.

### EU LEGAL FRAMEWORK FOR PAYMENT SERVICES

In contrast to large-value payment systems, retail payment systems in the EU have not become substantially more integrated since the introduction of the euro, due to differences in legal requirements, technical standards and commercial practices.<sup>17</sup>

With a view to addressing the legal obstacles to the cross-border provision of payment services, the European Parliament and Council adopted in November 2007 a Directive on payment services in the internal market.<sup>18</sup> Member States must transpose the Directive by 1 November 2009.

The ECB had issued its Opinion on the original Commission proposal for the Directive in April 2006.<sup>19</sup> It regards the adoption of the Payment Services Directive as a decisive step towards the realisation of SEPA. By providing the legal basis for SEPA, the aim of the Payment Services Directive is to ensure that payments within the EU – in particular credit transfer, direct debit and card payments – become as easy, efficient,

<sup>16</sup> See Commission Staff Working Document "Improving the Efficiency, Integration and Safety and Soundness of Cross-border Post-trading Arrangements in Europe" of 25 July 2007, available at [http://ec.europa.eu/internal\\_market/financial-markets/clearing/communication\\_en.htm](http://ec.europa.eu/internal_market/financial-markets/clearing/communication_en.htm).

<sup>17</sup> These barriers are, however, addressed by the banking system's initiative to create a Single Euro Payments Area (SEPA). For further information, see the section on the ECB's catalyst function below.

<sup>18</sup> Directive 2007/64/EC of the European Parliament and of the Council of 13 November 2007 on payment services in the internal market amending Directives 97/7/EC, 2002/65/EC, 2005/60/EC and 2006/48/EC and repealing Directive 97/SEC (OJ L 319, 5.12.2007, pp. 1-36).

<sup>19</sup> CON/2006/21 of 26 April 2006, available at [http://www.ecb.int/ecb/legal/pdf/c\\_10920060509en00100030.pdf](http://www.ecb.int/ecb/legal/pdf/c_10920060509en00100030.pdf). (OJ C 109, 9.5.2006, p. 10).

and secure as domestic payments within a Member State. The Payment Services Directive will reinforce the rights and protection of all the users of payment services.

### STATISTICS ON INSTITUTIONAL INVESTORS

In addition to the statistics collected on MFIs, the ECB also develops and compiles statistical information on other financial corporations, focusing on investment funds, financial vehicle corporations (securitisation vehicles), insurance corporations and pension funds. Given the growing financial role of institutional investors in the euro area, improved statistics on these actors are not only increasingly relevant from a monetary policy perspective, but will also help the monitoring of the financial integration process.

On 27 July 2007 the Governing Council of the ECB adopted Regulation ECB/2007/8 concerning statistics on the assets and liabilities of investment funds. The Regulation was published in the Official Journal of the European Union on 11 August 2007<sup>20</sup>. It defines the statistical standards for collecting and compiling investment funds statistics in the euro area. As set out in this Regulation, reporting will begin in early 2009 with monthly and quarterly data for December 2008.

Work is also currently underway to develop harmonised statistics on the balance sheets of securitisation vehicles (financial vehicle corporations). In addition, the ECB, together with the NCBs, is currently implementing an approach to produce euro area quarterly statistics on insurance corporations and pension funds.

## 2 CATALYST FOR PRIVATE SECTOR ACTIVITIES

While public authorities have the responsibility to provide an adequate framework conducive to financial integration, progress in European financial integration ultimately depends on private sector initiatives making full use of the cross-border business opportunities. Competition among market players is a major

driving force in this regard. In addition, progress made in the field of financial integration also depends on effective collective action, notably where heterogeneous market practices and standards need to be overcome. However, possible coordination problems may hamper such cooperative approaches among market participants. In such cases, public sector support for private coordination efforts may help to overcome possible difficulties.

Given its institutional characteristics, the ECB is particularly well placed to play an active role as a catalyst for private sector activities in the field of European financial integration. The ECB is both a public authority with a pan-European remit and, in its capacity as the central bank of the euro area, an active market participant, with the knowledge of and the business contacts in the financial markets.

Over the past few years, the ECB has acted as a catalyst in many fields. For example, the ECB calculates and provides the EONIA reference rate for the unsecured money market, based on the confidential contributions from banks.

In 2007 the catalytic activities of the ECB and the Eurosystem have focused mainly on the following initiatives: the STEP initiative, the SEPA project, the completion of the EFMLG report on legal obstacles to cross-border securitisations in the EU, and market transparency.

### STEP INITIATIVE

The STEP initiative of the ACI and the EBF seeks to promote the integration and development of a pan-European short-term paper market through the voluntary compliance of market players with a core set of standards. These standards are contained in the STEP Market Convention, signed on 9 June 2006. The STEP market is also accepted as a non-regulated market for collateral purposes in Eurosystem credit operations. In December 2007 the outstanding amount of euro-denominated STEP

<sup>20</sup> OJ L 211, 11.8.2007, p. 8.



securities reached €320 billion in 69 STEP-compliant programmes, the vast majority of which were denominated in euro. Among the issuers, some 40% were entities other than credit institutions. Further information on STEP and STEP-labelled programs can be found on the STEP Market website.<sup>21</sup>

The ECB and the Eurosystem have supported the STEP initiative since its inception in 2001, by acting as a catalyst to facilitate coordination among market players.<sup>22</sup> During 2007 this contribution focused on two main activities. First, the ECB and nine NCBs of the Eurosystem provide technical assistance to the STEP Secretariat (formed by Euribor ACI and Euribor EBF) concerning the STEP labelling process. The ultimate responsibility for granting and withdrawing the STEP label rests fully with the STEP Secretariat. Second, the ECB regularly produces statistics on yields and volumes in the STEP market and publishes these figures on its website. Since September 2006, the ECB has been publishing monthly outstanding amounts of STEP-labelled issues. As of 2 April 2007, daily STEP yield statistics for STEP-labelled issues from selected data providers are also published.<sup>23</sup> The statistics cover annualised yields for euro-denominated, STEP-labelled zero coupon issues, referring to the primary market interest rates individually and originally agreed between issuer and investor for a short-term debt security with an original maturity of up to one year. Yield statistics are also published for STEP issues priced with a spread against reference interest rates. The yield statistics are published on the ECB's website on the first business day of each week and contain the data of each day of the previous week. Daily statistics with all data providers are planned to be released in the course of 2008.

### SEPA INITIATIVE

The SEPA initiative, led by the European Payments Council (EPC), is aimed at achieving a fully integrated market for retail payment services in the euro area with no distinction between cross-border and national payments.<sup>24</sup> SEPA will also enhance the automation of

payments throughout Europe, which should result in substantial benefits for users.

Since its inception, the Eurosystem has played a catalytic role with regard to the SEPA project. The launch of the SEPA initiative in 2002 was itself inspired by the shared vision of the Eurosystem and the European Commission to reap the full benefits of a single currency via the establishment of a fully integrated market for cashless retail payments.<sup>25</sup>

Concerning activities undertaken during 2007, on 20 July 2007 the Eurosystem published the fifth SEPA progress report.<sup>26</sup> In this report, the Governing Council of the ECB emphasised the fact that continued efforts of financial market participants (such as banks, corporate entities, public administrations, national banking communities and merchants) were needed to ensure the success of the SEPA. Complete clarity on all features of SEPA, further card standardisation, the establishment of at least one additional European debit card scheme, and the effective and timely accessibility of banks were highlighted as key issues to address remaining pressure points in the delivery of SEPA. While greatly appreciating the work of the European banking industry for SEPA, managed by the EPC, the Eurosystem noted that the project had entered a critical phase, as its official launch in January 2008 was only a few months away.

To facilitate progress on the SEPA project, the ECB organised a number of meetings with different stakeholders, end-users, infrastructure

21 See at <http://www.stepmarket.org>. Statistics are available on <http://www.ecb.europa.eu/stats/money/step/html/index.en.html>.

22 The Special Feature B in Chapter II of this report provides detailed information on the STEP initiative and the catalytic role of the ECB and the Eurosystem.

23 See the ECB's website at <http://www.ecb.europa.eu/stats/money/step/>.

24 It is noted that whereas the Payment Services Directive targets the existing legal barriers to the cross-border provision of payment services, the SEPA initiative is aimed at harmonising technical standards and market practices to support those activities.

25 Detailed information about the activities of the Eurosystem in this regard is provided at <http://www.ecb.int/paym/pol/sepa/html/index.en.html>.

26 "SEPA: from concept to reality. Fifth progress report", 20 July 2007.



providers and with card schemes in 2007. The ECB also participated as an observer in EPC plenary meetings and in the working groups that report to the EPC plenary.

Furthermore, throughout 2007 the Eurosystem continued to provide assistance to the banking industry regarding the design and preparation of the new SEPA instruments and frameworks. The Eurosystem contributed to the creation of a common set of rules for SEPA credit transfer and direct debit instruments, and assisted in the development of different options for the basic schemes.

In addition, the Eurosystem assisted the banking industry on a range of horizontal issues related to SEPA, especially relating to the required aspects of standardisation and governance. The Eurosystem also contributed to the preparations for the implementation of SEPA schemes and for the migration from national instruments towards SEPA-compliant practices. The NCBs have supported the establishment of national migration plans, and those with an operational role in retail payments will be involved in the testing procedures of the different schemes. All the SEPA migration plans of the euro area communities are published on the ECB website.

Finally, the ECB has also carried out, in cooperation with the banking industry, a SEPA impact study with the aim of enriching its understanding of the potential economic consequences of SEPA.<sup>27</sup> The findings of the study confirm the view that a dual SEPA implementation phase (with the parallel use of national and SEPA schemes) should be as short as possible. In fact, a coexistence of both SEPA and national instruments is expected to be costly for banks, as confirmed by the ECB study. The study also shows that a rapid changeover to SEPA-compliance will help reduce the costs for banks and infrastructures and concludes that those institutions that embrace new technological developments, create new businesses and provide innovative services are likely to gain most from SEPA.

Since the end of January 2008, SEPA credit transfers have become effective for a significant number of banks and infrastructures. At the same time banks and infrastructures remain equally free to continue the existing national schemes. This means that customers will be offered both old national and new SEPA instruments. It is expected, however, that a critical mass of payments will be made on the basis of SEPA instruments by the end of 2010.

The SEPA credit transfer is the first achievement in SEPA, and further efforts need to be undertaken to make SEPA a success. The SEPA direct debit, in particular, should be rolled out and the awareness of users needs to be increased further. The Eurosystem suggested, in particular, that more communication was needed (towards main users such as corporates) and that additional information on the national SEPA migration plans should be provided to facilitate the adoption of the new instruments. Further clarity on the phasing-out of national instruments was also needed.

In the next few years, the banking community will continue the broadening and deepening of SEPA and will finalise other building blocks of SEPA, such as the standards for card payments and standards for the messages between the customers and their banks.

#### **EFMLG REPORT ON LEGAL OBSTACLES TO CROSS-BORDER SECURITISATIONS IN THE EU**

In 2007 the ECB acted as a catalyst to facilitate and support the activities of the EFMLG working group on securitisation. On 7 May 2007 the EFMLG adopted a report on legal obstacles to cross-border securitisations in the EU.<sup>28</sup>

<sup>27</sup> See H. Schmiedel (2007), "The economic impact of the Single Euro Payments Area", ECB Occasional paper No. 71, August.

<sup>28</sup> The report is available on the EFMLG group's website at [www.efmlg.org](http://www.efmlg.org). See also Special Feature C in Chapter II of this report for more information on the activities of the EFMLG. It should be noted that the EFMLG report does not cover the securitisation frameworks in the new Member States who joined the EU in May 2004 and January 2007.

The report concludes that despite some improvements, mainly at national level, the legal frameworks for securitisation in the EU remain diverse and fragmented, and that a number of legal impediments continue to hinder the development of pan-European securitisation. At the same time, full harmonisation of securitisation laws is deemed neither realistic nor desirable. Instead, Member States should adopt a suggested core set of common principles, set out in the report, to ensure a high level of transparency, efficiency and legal certainty. It is expected that effective progress in this field will require the support of legislative of action at EU level, such as the adoption of a Directive dealing with certain legal aspects of securitisation.

Since the publication of the report, the EFMLG and the ECB have established contacts with the Commission and market associations such as the European Securitisation Forum to examine the technical issues raised by the lack of legal integration of securitisation markets.

These issues have become topical as the securitisation market has received increasing attention in the context of the financial market turmoil, as evidenced by the ECOFIN conclusions of October 2007. The Commission, as set out in its White Paper on the integration of EU mortgage credit markets of December 2007, considers that a range of different policy options could eventually be considered to address the issue of the different and fragmented national securitisation frameworks, such as a recommendation setting out certain principles that Member States should take into account in their securitisation laws, a directive on securitisation, or the development of an optional European regime. Given the scope for enhancing the efficiency of EU mortgage funding markets, the Commission also states its intention in the White Paper to continue its analysis of the nature, causes and magnitude of the problems identified by both the Mortgage Funding Expert Group<sup>29</sup> and the EFMLG's reports. In doing so, the Commission will take into account recent market developments, the complexity and horizontal dimension of the

obstacles identified by the expert groups, and the wide-ranging implications for all stakeholders.

The ECB supports the Commission's intention to create an expert working group on securitisation in 2008, which would also constitute an opportunity to draw lessons from the recent market turmoil.

### **3 KNOWLEDGE ABOUT THE STATE OF FINANCIAL INTEGRATION**

A sound analysis of the economic benefits of financial integration and its development over time forms a prerequisite for effectively targeted action that can support further progress.

The ECB is in a unique position to provide in-depth economic analysis and comprehensive statistics regarding the state of financial integration in the euro area and its development. In particular, the ECB is able to sponsor coordinated analytical research – together with other members of the Eurosystem and academics – and can make use of its experience and knowledge as an active market participant. Enhancing knowledge and raising awareness regarding the need for European financial integration, and measuring the progress achieved in this regard, therefore form a major part of the ECB's contribution to fostering financial integration.

During 2007 the activities of the Eurosystem with respect to enhancing knowledge, raising awareness and monitoring the state of financial integration were mainly focused on the following initiatives.

<sup>29</sup> The Mortgage Funding Expert Group (MFEG) report of December 2006 can be found at [http://ec.europa.eu/internal\\_market/finances-retail/home-loans/integration\\_en.htm#whitepaper](http://ec.europa.eu/internal_market/finances-retail/home-loans/integration_en.htm#whitepaper).

## INDICATORS OF FINANCIAL INTEGRATION IN THE EURO AREA

Quantitative measures of financial integration provide essential tools for monitoring the progress made in financial integration. Since September 2005 the ECB has published quantitative indicators of integration in the euro area financial and banking markets.<sup>30</sup> These price- and quantity-based indicators cover the money market, the government and corporate bond markets, the equity market and the banking markets. The latter include the cross-border presence of euro area banks. Since financial infrastructures play a significant role in the ongoing process of financial integration, indicators on market infrastructures have been allocated to the main financial markets that they serve.

The range of indicators is expected to be extended on the basis of further advances in research and economic analysis, together with an improved availability of statistics, especially with regard to non-bank financial institutions including investment funds, securitisation vehicles, insurance corporations and pension funds. All indicators are updated and published semi-annually on the ECB website.<sup>31</sup>

## ASSESSING THE DEVELOPMENT OF THE FINANCIAL SYSTEM

One important underlying motive of the ECB's interest in fostering financial integration is its expected positive implication for the development of the financial system, and the resulting benefits in terms of increased potential for economic growth. The ECB's work on financial integration is therefore closely linked to its wider analysis of factors supporting the adequate functioning of financial systems. On this subject, the ECB published Occasional Paper No. 72 "The role of financial markets and innovation in productivity and growth in Europe" in September 2007 and a Monthly Bulletin article entitled "Assessing the performance of financial systems" in October 2005. Special

Feature A in Chapter II of this report develops further the work at the ECB in this important area.

## MONITORING DEVELOPMENTS IN CROSS-BORDER BANKING

Since 2001 the ESCB's Banking Supervision Committee (BSC) has carried out a biennial survey of the main characteristics of EU banking groups with significant cross-border activity. The survey, which has so far been conducted for the years 2001, 2003 and 2005,<sup>32</sup> provides evidence of the increasing internationalisation of EU banking groups. While the number of banking groups included in the survey has increased only moderately (from 41 to 46) over time, the consolidated assets of the sample as a whole grew by 54% from 2001 to 2005, and its share in consolidated EU banking assets increased from around 54% to 68%. This indicates that EU banking groups with significant cross-border activity hold a sizable – and rising – share of total EU banking assets.

At the same time, closer ECB analysis of the data has revealed that the intensity and geographical scope of foreign activity varies considerably among the banks included in the sample. During 2005, 16 out of the 46 banking groups included in the survey held at least 25% of their EU assets outside their home country and were present in at least 25% (i.e. at least six) of the other 24 countries and could therefore be considered the "key cross-border players" in the EU.<sup>33</sup>

30 See Chapter I, as well as the ECB reports on "Indicators of financial integration in the euro area", September 2005 and 2006, available on the ECB's website.

31 See <http://www.ecb.int/stats/finint/html/index.en.html>.

32 The next BSC mapping exercise, which will produce figures for the year 2007, will be carried out during 2008.

33 For further information on the BSC mapping exercise and the key cross-border players, see "Review of the Lamfalussy framework. Eurosystem contribution", available at <http://www.ecb.europa.eu/pub/pub/prud/html/index.en.html>, pp. 4-5.

## **ECB-CFS RESEARCH NETWORK ON CAPITAL MARKETS AND FINANCIAL INTEGRATION IN EUROPE**

In April 2002 the ECB and the Center for Financial Studies (CFS) in Frankfurt launched the ECB-CFS Research Network to promote research on “capital markets and financial integration in Europe”.<sup>34</sup> The Research Network is aimed at coordinating and stimulating top-level and policy-relevant research that significantly contributes to the understanding of the European financial system and its international linkages. European financial integration is one of the three main focal areas in this regard.<sup>35</sup>

The Research Network has successfully established itself as a highly dynamic network of researchers working in various areas related to financial integration. The second phase of research activity – lasting from 2005 to the Symposium held in February 2008 in Frankfurt – focused on three priority areas: (i) the relationship between financial integration and financial stability; (ii) EU accession, financial development and financial integration; and (iii) financial system modernisation and economic growth in Europe.

After an in-depth discussion in July 2006, the Steering Committee proposed the extension of the work of the ECB-CFS Network by another three years. To fill the remaining gaps, the focus shall be on the following three priority areas: (i) financial systems as risk managers and risk distributors; (ii) integration and development of retail financial services and the promotion of innovative firms; and (iii) financial modernisation, governance and the integration of the European financial system in global capital markets. The first area assesses, among other things, the effects of new financial instruments on economic efficiency and policy. The second area investigates, for example, why venture capital financing in many European countries is relatively low and how to foster more integration in these financial markets. An example of a topic covered by the last area is the

importance of global coordination of financial sector reforms among the major economies.

On 8-9 October 2007 the Research Network organised the ninth conference, hosted by the Central Bank and Financial Services Authority of Ireland in Dublin. The topic of the conference was “Asset Management, Private Equity Firms and International Capital Flows: Their Role for Financial Integration and Efficiency”. On 13-14 February 2008 the ECB hosted the Second Symposium of the Research Network, which, as mentioned above, concluded the second phase of the Network and featured presentations related to the above-mentioned priority areas.

Finally, the ECB-CFS Research Network also awards five “Lamfalussy Fellowships” every year to promising young researchers whose projects are related to financial integration.

## **TRANSPARENCY REQUIREMENTS IN MARKETS OTHER THAN EQUITIES**

Article 65(1) of MiFID requires the European Commission to submit a review to the European Parliament on the possible extension of the transparency provisions set out in the Directive to cover financial instruments other than equities, and in particular to bond markets. Since 2003 market practitioners and regulators have been extensively debating the implications of enhanced trading transparency for non-equity financial instruments, especially corporate bonds. Beyond the general interest deriving from the Treaty’s call for competitive markets, the ECB has a particular interest in well-functioning, efficient and integrated European financial markets, as these can more effectively contribute to the proper transmission of monetary policy and help to stabilise the financial system. The current limited transparency of secondary bond markets has direct practical implications

<sup>34</sup> <http://www.eu-financial-system.org>.

<sup>35</sup> In addition, the ECB-CFS Research Network studies financial system structures in Europe, and financial linkages between the euro area/EU, the United States and Japan.

for the implementation of monetary policy in particular. Indeed, it affects pricing capability and the accuracy of risk control measures that are part of the collateral management function of the Eurosystem. These valuation shortcomings were particularly evident during the recent market turmoil.

In order to increase knowledge on the issue, the ECB made an assessment and consequently explained its view at the public hearing on non-equity market transparency held by the European Commission on 11 September 2007. The ECB's analysis focused on post-trade transparency in both retail and wholesale markets. In this regard, the ECB proposed to address the current lack of empirical evidence on the trade-off between transparency and liquidity by means of a market-led pilot project or a controlled experiment.<sup>36</sup> In such an experiment, post-trade transparency could be gradually introduced into real corporate bond markets, for instance by starting with the most liquid market segment and checking against a control set of similar bonds. The ECB would support a market-led initiative committed to carefully analysing the impact of higher post-trade transparency on market liquidity and to seeking an adequate transparency framework for the whole market, without restricting it to retail markets. If needed, a more active role for the European Commission and the CESR could be considered.

#### DIFFERENCES IN MFI INTEREST RATES ACROSS EURO AREA COUNTRIES

Building on the main conclusions of the report on differences in MFI interest rates across euro area countries,<sup>37</sup> the ECB organised a workshop on 5 February 2007 entitled "Interest rates in retail banking markets and monetary policy" which focused on the reasons for differences in the national retail banking interest rates that underlie the euro area aggregate.<sup>38</sup> A number of important policy topics of relevance for the conduct of monetary policy were presented, including interest rate pass-through asymmetries and the implications of sluggish and incomplete pass-through. To varying degrees, MFI interest

rates display differences across countries. The results discussed during the workshop suggested that some of these differences decline in significance once adequate account is taken of factors affecting the interest rates, such as differences in competition, product characteristics, and institutional features.

Since 2006 the Eurosystem releases monthly tables, in which 15 types of average deposit and lending interest rates in each country and the euro area are presented for comparison.<sup>39</sup> In addition, the ECB's Statistical Data Warehouse<sup>40</sup> and the NCB websites feature information on altogether 45 instrument categories and breakdowns. By making available detailed and comprehensive information on average MFI interest rates, the Eurosystem aims to ensure that comparisons across countries are made on a well-informed basis. A good conceptual framework for the statistical measurement of retail banking interest rates is essential in light of the key role of MFI interest rates in the conduct of monetary policy. At the ECB workshop, possible enhancements to the statistical framework for the MFI interest rate data collection were also discussed. Consideration is currently being given to these enhancements in the context of a possible update of the ECB's statistical regulations addressed for MFIs.

#### PROVISION OF FINANCIAL MARKETS STATISTICS

Increasing transparency fosters integration, as it facilitates the comparison of products across the economic area. For this purpose, on 10 July 2007 the ECB published for the first time the nominal yield curves of AAA-rated euro-

36 The merits of this approach are also confirmed in point 70 of the report by the European Securities Market Experts (ESME) on "Non-Equity Market Transparency", June 2007. See [http://ec.europa.eu/internal\\_market/securities/esme/index\\_en.htm#070711\\_2](http://ec.europa.eu/internal_market/securities/esme/index_en.htm#070711_2). The ECB participates in the ESME group as an observer.

37 "Differences in MFI interest rates across euro area countries", September 2006, <http://www.ecb.europa.eu/press/pr/date/2006/html/pr060920.en.html>.

38 See the ECB's website at <http://www.ecb.int/events/conferences/html/mir.en.html>.

39 See the ECB's website at <http://www.ecb.europa.eu/stats/services/escb/html/index.en.html>.

40 Accessible via the ECB's website under <http://sdw.ecb.europa.eu/>.



denominated euro area central government bonds, with a residual maturity from three months to 30 years. In addition, the ECB releases daily yield curves covering all euro area central government bonds and publishes the spreads between both curves.<sup>41</sup>

A yield curve shows the relationship between the market remuneration rate and the remaining time to maturity of bonds with a similar risk profile at a certain moment in time. From an ECB monetary policy perspective, the main benefit of the euro area yield curve is that it provides a proper empirical representation of the term structure of euro area interest rates, which can be interpreted in terms of market expectations on monetary policy, economic activity and inflation. Publishing a consistent and comparable set of yield curves based on euro-denominated central government bonds also provides reference information for the wider public and financial market participants, who previously had to rely on references to bonds of individual issuers.

#### 4 CENTRAL BANK SERVICES THAT FOSTER INTEGRATION

The provision of central bank services is another way in which the Eurosystem seeks to promote financial integration. Although the main purpose of such services is the pursuit of the ECB's basic central banking tasks, the ECB pays close attention to ensuring that such services, where possible, are specified in such a way that they are also conducive to supporting the financial integration process.

During 2007 the Eurosystem focused its activities in the area of central bank services mainly on the following initiatives.

##### TARGET AND TARGET2

The rapid integration of the euro area money markets has been closely related to the establishment of the related payment system infrastructure – i.e. TARGET, the RTGS

system for the euro that has been operational since the first day of Monetary Union.<sup>42</sup> With €2.3 trillion settled every day, TARGET is one of the three largest wholesale payment systems in the world, alongside Fedwire in the United States and CLS, the international system for settling foreign exchange transactions. Since its inception, TARGET has formed a benchmark for processing euro payments in terms of speed, reliability and service levels, and has contributed to the integration of financial markets in Europe by providing its users with a common payment and settlement infrastructure.

In October 2002 the Eurosystem decided to commence with the development of an enhanced version of the TARGET system. It was envisaged that TARGET2 would become a system that (i) provides extensively harmonised services via an integrated IT infrastructure, (ii) improves cost-efficiency and (iii) is prepared for swift adaptation to future developments, including the enlargement of the Eurosystem.<sup>43</sup> During 2007 the Eurosystem finalised its preparation for the launch of the new system. In June and October the ECB published the fourth and fifth progress reports on TARGET2.<sup>44</sup> The reports contained information about the recent decisions of the Governing Council on outstanding pricing and financial issues. The progress reports included the final version of the General Functional Specifications. Like the third progress report on TARGET2, the most recent progress report provided information on legal issues, on recent changes to the envisaged functionality of the SSP, on testing and migration activities, and on other ongoing issues of relevance to TARGET2. It confirmed that the final stage of preparation of TARGET2 was progressing as planned.

41 The yield curves and a description of the methodology used to estimate them can be found on the ECB's website at <http://www.ecb.int/stats/money/yc/html/index.en.html>.

42 See also Chapter I.

43 See Special Feature D in Chapter II for further information on the TARGET system and the subsequent development of TARGET2.

44 See "Fourth progress report on TARGET2", 22 June 2007, available on the ECB's website at <http://www.ecb.europa.eu/press/pr/date/2007/html/pr070622.en.html>, and "Fifth progress report on TARGET2", 29 October 2007, available at <http://www.ecb.europa.eu/pub/pdf/other/target2progressreport5en.pdf>.



On 8 September 2007 the ECB Guideline of 26 April 2007 on TARGET2 (ECB/2007/2) and the ECB Decision of 24 July 2007 concerning the terms and conditions of TARGET2 (ECB/2007/7) were published in the Official Journal.<sup>45</sup>

The successful launch of the single technical platform TARGET2 with the connection of the first group of countries on 19 November 2007, followed by the second group on 18 February 2008, introduced a harmonised service level to ensure a level playing-field for banks across Europe. With the migration of the third and last group of countries, scheduled for 19 May 2008, all central banks and TARGET users will have migrated to TARGET2.

A single price structure applies to both domestic and cross-border transactions. TARGET2 also provides a harmonised set of cash settlement services in central bank money for all kinds of ancillary systems, such as retail payment systems, money market systems, clearing houses and SSSs. Moreover, the new functionalities of TARGET2 enable cross-border banks to consolidate their internal processes, such as treasury and back office functions, and to more successfully integrate their euro liquidity management. In addition, TARGET2 users have uniform access to comprehensive online information, as well as easy-to-use liquidity control measures.

### TARGET2-SECURITIES

With a view to maximising the benefits from the establishment of TARGET2, the Eurosystem started to explore the possibility of providing settlement services in central bank money for euro-denominated securities transactions in 2006.

The objective of the T2S project is to harmonise the settlement of securities against central bank money, thereby concentrating securities and cash settlements within Europe on an efficient single platform. T2S will ensure that there will no longer be a difference between conducting

domestic and cross-border settlement within the euro area, act as a catalyst for the integration of the European post-trading financial sector and foster competition by providing an equal, cheaper and harmonised access to settlement services in the European financial market. All the other functions traditionally performed by CSDs would remain their responsibility – i.e. managing legal and commercial business relationships with issuers, intermediaries and investors, handling corporate actions and ensuring compliance with regulatory requirements.<sup>46</sup>

After the Governing Council's conclusion on 8 March 2007 that the T2S project was feasible, the remaining part of 2007 was largely dedicated to detailing the comprehensive user requirements. This work was performed with full transparency and in cooperation with the market, in particular with CSDs and market participants. During this project phase the T2S governance structure involved more than 188 persons from 77 organisations who actively took part in the various public consultations, mini-consultations and National User Group meetings in order to ensure that all user needs and concerns were adequately addressed in the user requirements.

Furthermore, public authorities such as ECOFIN, the European Parliament and the European Commission support the initiative and are regularly updated on developments. In addition, any party outside the T2S governance structure can follow the progress of the project via the ECB website<sup>47</sup> and provide input to the user requirements through the various public consultation processes established.

On 18 December 2007 the ECB opened the T2S user requirements and the methodology for the assessment of the economic impact of T2S to public consultation. During the public

45 OJ L 237, 8.9.2007, pp. 1 and 71.

46 For additional information on the T2S project see Special Feature D in Chapter II.

47 See the "TARGET2-Securities progress report", 26 October 2007, available at <http://www.ecb.europa.eu/pub/pdf/other/t2s-progress-report200710en.pdf>.

consultation period, i.e. until 2 April 2008, the Eurosystem intends to maintain close contact with stakeholders. In parallel, a proposal for a T2S governance structure for the next phase of the project will be prepared and submitted to the Governing Council for decision in spring 2008.

By May 2008 ECOFIN is expected to share its views on the T2S project with the Eurosystem. The Governing Council of the ECB will take these into consideration prior to making a decision, by the middle of 2008, on whether to move to the next phase of the project.<sup>48</sup>

#### **CORRESPONDENT CENTRAL BANKING MODEL (CCBM)**

The CCBM for the cross-border transfer of collateral within the Eurosystem, established in 1999, is another Eurosystem service conducive to fostering financial integration.

Over time CCBM has become the major channel for the cross-border use of collateral for Eurosystem credit operations. Despite this success, market participants have identified some drawbacks in this procedure which mainly relate to the lack of standardisation of existing procedures, both domestically and at a cross-border level.

Against this background, the Governing Council decided on 8 March 2007 to review the current Eurosystem collateral management handling procedures, in particular the CCBM. It has decided to develop a single technical platform – called CCBM2 – to enable the Eurosystem to manage collateral for both domestic and cross-border operations. CCBM2 will be based on existing systems such as that of the Nationale Bank van België/Banque Nationale de Belgique and De Nederlandsche Bank. Work on the user requirements for this new procedure is currently being conducted in consultation with market participants.<sup>49</sup> A public consultation in this regard was launched on 26 February 2008.

48 Banco de España, Banque de France, Banca d'Italia and the Deutsche Bundesbank have all stated that they are ready to develop and operate T2S on behalf of the Eurosystem.

49 See Special Feature D in Chapter II for further information on the CCBM2 project.



# STATISTICAL ANNEX

## MONEY MARKET INDICATORS

### Price-based indicators

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### Infrastructure indicators for large-value payment systems (LVPS)

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## BOND MARKET INDICATORS

### GOVERNMENT BOND MARKET

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### CORPORATE BOND MARKET

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#### Infrastructure indicators

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Chart C18: Share of domestic and non-domestic direct participants in central securities depositories (CSDs)	S12
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### **Quantity-based indicators**

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## **BANKING MARKET INDICATORS**

### **Cross-border presence indicators**

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Chart C27: Dispersion of the number of euro area bank subsidiaries across euro area countries	S16
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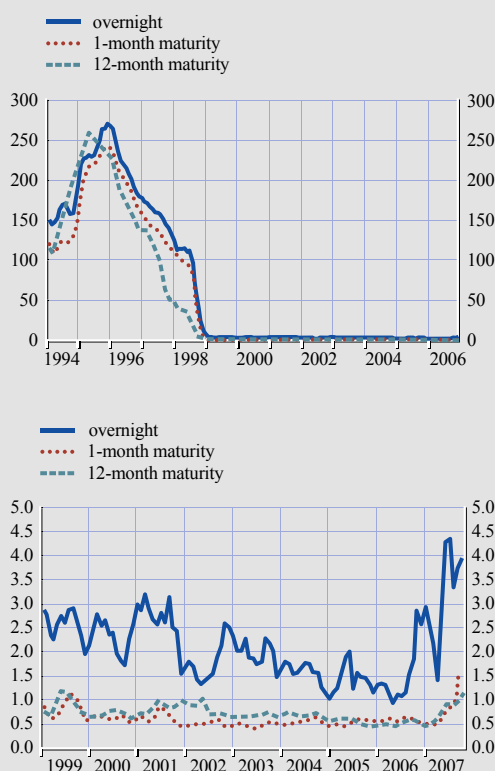


## MONEY MARKET INDICATORS

### PRICE-BASED INDICATORS

**Chart C1 Cross-country standard deviation of average unsecured interbank lending rates across euro area countries**

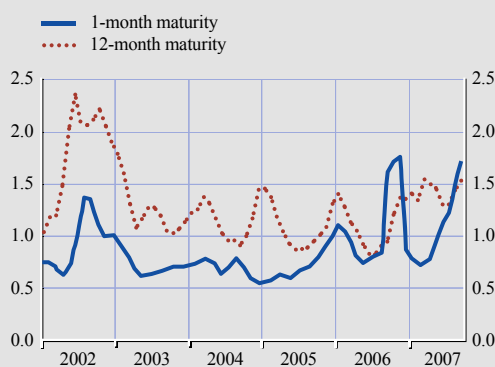
(61-day moving average; basis points)



Sources: EBF, ECB calculations.

**Chart C2 Cross-country standard deviation of average interbank repo rates across euro area countries**

(61-day moving average; basis points)



Sources: EBF, ECB calculations.

### Description

The EBF makes available (daily) business frequency data for a panel of individual institutions for both unsecured and secured short-term interbank loans or deposits. These data cover the EONIA and the EURIBOR (unsecured lending) as well as the EUREPO for different maturities.<sup>1</sup> Data on the EONIA SWAP INDEX can also be used.

For each dataset, the indicator is the unweighted standard deviation ( $D_t$ ) of average daily interest rates prevailing in each euro area country. Reported rates are considered to be the national rates of country  $c$  if the reporting bank is located there. However, the counterparty of the transaction is not known, and the reported interest rate could thus potentially (in part) refer to transactions with a bank outside country  $c$ .

The number of euro area countries ( $n_t$  in the formula below) reflects the number of countries that had adopted the euro in the reference period:

$$D_t = \sqrt{\frac{1}{n_t} \sum_c (r_{c,t} - r_t)^2}, \quad (1)$$

where  $r_{c,t}$  is the unweighted average of the interest rate  $r_{i,t}^c$  reported by each of the  $m_c$  panel banks at time  $t$  in a given country  $c$ :

$$r_{c,t} = \frac{1}{m_c} \sum_i r_{i,t}^c. \quad (2)$$

The euro area average  $r_t$  is calculated as the unweighted average of the national average interest rates  $r_{c,t}$ .

The data are smoothed by calculating a 61 (business) day centred moving average of the standard deviation, transformed into monthly figures by taking the end-of-month observation of the smoothed series.

<sup>1</sup> For further information, see <http://www.euribor.org/default.htm> and <http://www.eurepo.org/>. See also "The contribution of the ECB and the Eurosystem to European financial integration" in the May 2006 issue of the ECB's Monthly Bulletin, p. 67.

For indicative series prices (EURIBOR, EUREPO), the data are corrected for obvious outliers.

The computed indicator has a monthly frequency.

#### Additional information

The EONIA is the effective overnight reference rate for the euro. The banks contributing to the EONIA are the same as the EURIBOR panel banks (composed of banks resident in the euro area and in other EU Member States, as well as some international banks).

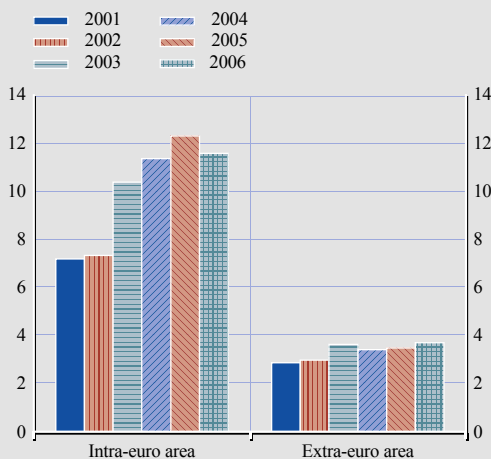
The EURIBOR is the benchmark rate of the large unsecured euro money market for maturities longer than overnight that has emerged since 1999.

The EUREPO is the benchmark rate of the euro repo market, and has been published since March 2002. It is the rate at which one prime bank offers funds in euro to another prime bank when the funds are secured by a repo transaction using general collateral.

#### QUANTITY-BASED INDICATORS

**Chart C3 The degree of cross-border holdings of short-term debt securities issued by euro area residents**

(percentages)



Sources: BIS, IMF and ECB calculations.

#### Description

This indicator measures the degree of cross-border allocation of short-term debt securities, i.e. securities with an original maturity of up to one year, between euro area Member States.

*Intra-euro area* is defined as the share of short-term debt securities issued by euro area residents and held by other euro area residents (excluding central banks):

$$\frac{\sum_{i \neq j} \sum_t Outstock_{ij,t}}{\sum_i MKT_{i,t} + \sum_i TOutstock_{i,t} - \sum_i TInstock_{i,t}} \quad i, j \in \{\text{euro area countries}\} \quad (3)$$

where  $Outstock_{ij}$  denotes the value of assets issued by residents of euro area Member State  $i$  and held by residents of euro area Member State  $j$  ( $i \neq j$ );  $MKT_i$  stands for market capitalisation in country  $i$ ;  $TOutstock_i$  is the total foreign assets held by country  $i$ ; and  $TInstock_i$  is the total foreign liabilities of country  $i$ .

*Extra-euro area* is defined as the share of euro area short-term debt securities held by non-residents of the euro area (excluding central banks). The measure takes the following form:

$$\frac{\sum_i \sum_r Outstock_{ir,t}}{\sum_r MKT_{r,t} + \sum_r TOutstock_{r,t} - \sum_r TInstock_{r,t}} \quad \begin{matrix} i \in \{\text{euro area countries}\} \\ r \in \{\text{rest of the world}\} \end{matrix} \quad (4)$$

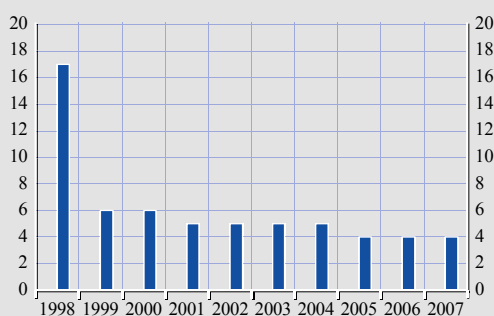
where  $Outstock_{ir}$  denotes the value of assets issued by residents of euro area Member State  $i$  and held by non-residents of the euro area  $r$  (*rest of the world*);  $MKT_r$  stands for market capitalisation in country  $r$ ;  $TOutstock_r$  is the total foreign assets held by country  $r$ ; and  $TInstock_r$  is the total foreign liabilities of country  $r$ .

The computed indicator has a yearly frequency.

#### Additional information

The indicators are built on the basis of the Coordinated Portfolio Investment Survey (CPIS) of the IMF, which is conducted on an annual basis and undertaken by national statistics compilers. Short-term debt securities encompass Treasury bills, commercial paper and bankers' acceptances that usually give the holder the unconditional right to a fixed sum of money on a specified date. These instruments are usually traded on organised markets at a discount and have an original term to maturity of one year or less.

**Chart C4 The number of large-value payment systems (LVPS) in the euro area**



Source: ECB.

#### INFRASTRUCTURE INDICATORS FOR LARGE-VALUE PAYMENT SYSTEMS (LVPS)

##### Description

This indicator counts the absolute number of LVPSs in the euro area at the end of each year. The indicator covers, for the whole series, the Member States of the euro area that had adopted the euro at the time to which the statistics relate.

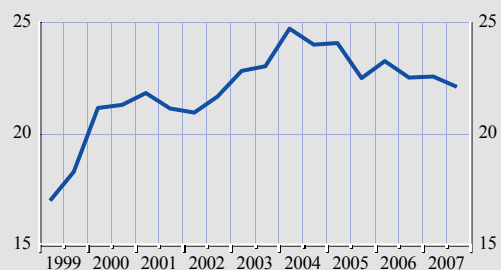
The computed indicator has a yearly frequency.

##### Additional information

LVPSs, also known as wholesale systems, can be defined as systems that generally process payments of very large amounts. Such payments are mainly exchanged between banks or participants in the financial markets and usually require urgent and timely settlement.

**Chart C5 TARGET: the share of payments between Member States in total payments**

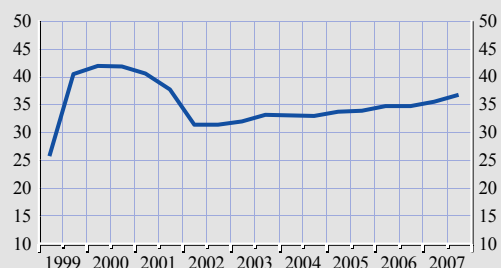
(in volume; percentages)



Source: ECB.

**Chart C6 TARGET: the share of payments between Member States in total payments**

(in value; percentages)



Source: ECB.

##### Description

The first indicator shows the share of the volume of payments between euro area Member States (inter-Member State payments) in the total number of payments processed in the TARGET system.

The second indicator shows the share of the value of payments between euro area Member States (inter-Member State payments) in the total value of payments processed in the TARGET system.

Both indicators have a half-yearly frequency.

##### Additional information

The TARGET system is the real-time gross settlement (RTGS) system for the euro. A second-generation system, operating on a single shared

platform and called TARGET2, was launched on 19 November 2007 and will fully replace the former, decentralised TARGET system by 19 May 2008.

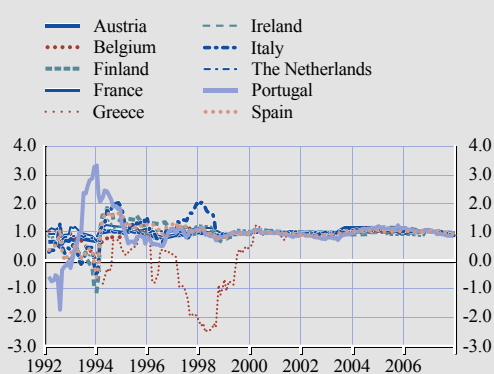
A TARGET inter-Member State payment is defined as a payment between counterparties who maintain accounts with different central banks participating in TARGET. An intra-Member State payment is defined as a payment between counterparties who maintain accounts with the same central bank.

## BOND MARKET INDICATORS

### GOVERNMENT BOND MARKET

#### PRICE-BASED INDICATORS

Chart C7 Evolution of beta coefficients for ten-year government bond yields



Sources: Reuters and ECB calculations.

#### Description

If bond markets are fully integrated and no country-specific changes in perceived credit risk occur, bond yields should only react to news common to all markets. That is, bond yields of individual countries should react exclusively to common news, which is reflected in a change in the benchmark government bond yield. To separate common from local influences, the following regression is run:

$$\Delta R_{c,t} = \alpha_{c,t} + \beta_{c,t} \Delta R_{ger,t} + \varepsilon_{c,t} \quad (5)$$

where  $\alpha$  denotes a country-varying and time-varying intercept;  $\beta$  is a country-dependent and time-dependent beta with respect to the benchmark (German) bond yield;  $\Delta R$  is the change in the bond yield; and  $\varepsilon$  is a country-specific shock.

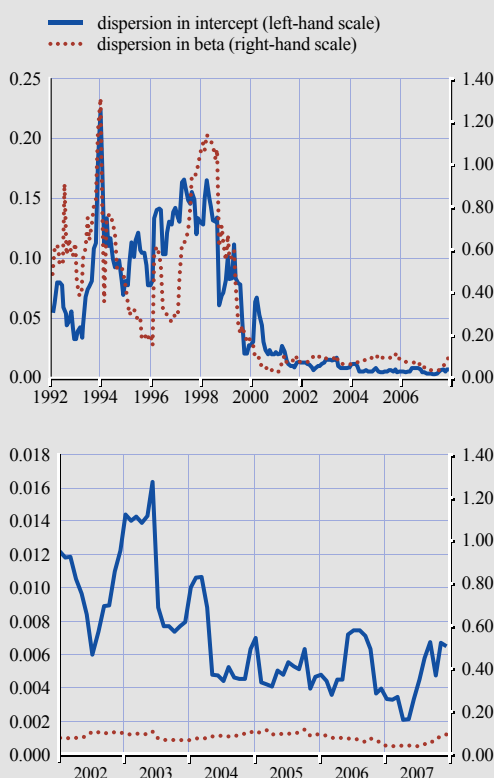
The conditional betas are derived by estimating the above regression using the first 18 months of monthly averages. Subsequently, the data window is moved one month ahead and the equation is re-estimated until the last observation is reached. A time series for  $\beta_{c,t}$  is then obtained.

This model-based indicator has a monthly frequency.

#### Additional information

The outcome of the econometric specification depends on the selection of the most appropriate benchmark bond, in this case the ten-year German government bond. In addition, one should not expect common factors to be able to fully explain changes in local bond yields, as “local news” concerning credit and liquidity risks will continue to have an impact on local yields.

**Chart C8 Average distance of intercept/beta from the values implied by complete integration for ten-year government bond yields**



Sources: Reuters and ECB calculations.

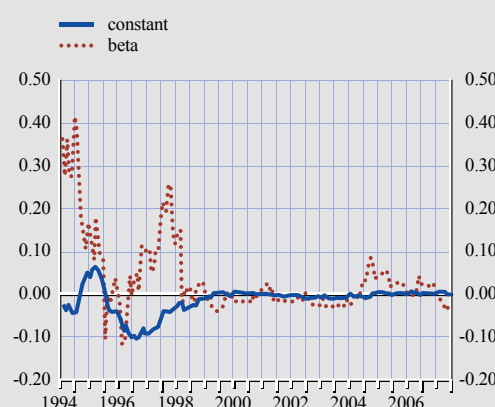
### Description

This indicator is derived using regression (5), as for the previous indicator. From the individual country regressions, the unweighted average  $\alpha_{c,t}$  and  $\beta_{c,t}$  values are calculated and measured in proportion to the values implied by complete market integration (0 and 1 respectively). The analysis is based on monthly averages of government bond yields.

The model-based indicator has a monthly frequency.

**Chart C9 Evolution of intercept and beta coefficients for ten-year government bond yields, adjusted for sovereign risk**

(difference from perfect-integration values)



Source: Reuters and ECB calculations.

### Description

Sovereign risk is controlled for by proxying it with rating dummies and by modifying regression (5) as follows:

$$\Delta R_{c,t} = (\alpha_{c,t} + \sum_{r \in \{AA+, \dots, A\}} \alpha_{r,t} D_{c,t}^r) + (\beta_{c,t} + \sum_{r \in \{AA+, \dots, A\}} \beta_{r,t} D_{c,t}^r) \Delta R_{ger,t} + \varepsilon_{c,t} \quad (6)$$

where  $D_{c,t}^r$  is a dummy for rating  $r$  and country  $c$ , at time  $t$ .

A potential problem with this regression is that coefficients are not identified when there is not sufficient cross-sectional variation in the ratings. To avoid this problem, the above regression was estimated without fixed effects, i.e.:

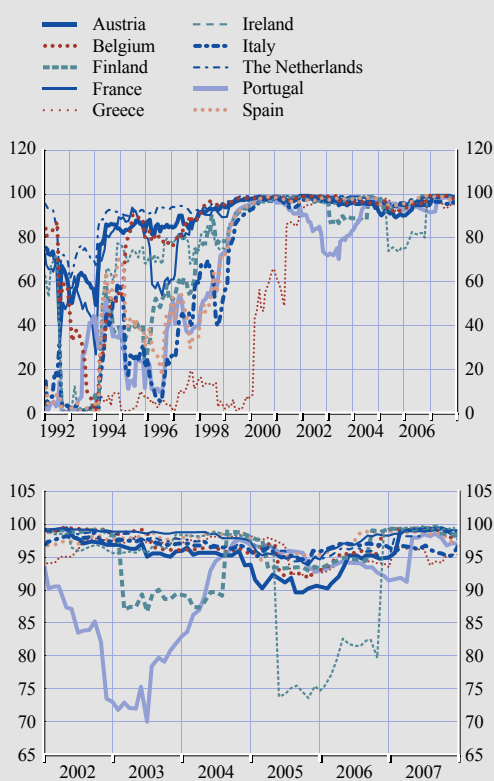
$$\Delta R_{c,t} = (\alpha_i + \sum_{r \in \{AA+, \dots, A\}} \alpha_{r,t} D_{c,t}^r) + (\beta_i + \sum_{r \in \{AA+, \dots, A\}} \beta_{r,t} D_{c,t}^r) \Delta R_{ger,t} + \varepsilon_{c,t} \quad (7)$$

Coefficients were made time-varying using a rolling regression (18-month rolling window).

The coefficients  $(\alpha_i, \beta_i)$  now capture the average country reactions to changes in the German government bond yields, after controlling for credit risk factors. In a situation of perfect integration they should converge to 0 and 1 respectively (assuming no other variable besides sovereign risk is affecting the change in yield).

The chart reports the estimation results for a sample starting in the second half of 1994.

**Chart C10 Variance ratio for ten-year euro area government bond yields**



Sources: Reuters and ECB calculations.

### Description

This indicator measures the proportion of the variance of local (country-specific) yields that can be explained by the variance of the benchmark (German) ten-year government bond yields, i.e. the “variance ratio”. The indicator is derived from the same 18-month rolling regression as for indicators C7 and C8 (see equation (5) above). The total variance of local yields is given by:

$$Var(\Delta R_{c,t}) = \beta_{c,t}^2 Var(\Delta R_{b,t}) + Var(\varepsilon_{c,t}) \quad (8)$$

and the variance ratio by:

$$VR_{c,t} = \frac{\beta_{c,t}^2 Var(\Delta R_{b,t})}{Var(\Delta R_{c,t})}. \quad (9)$$

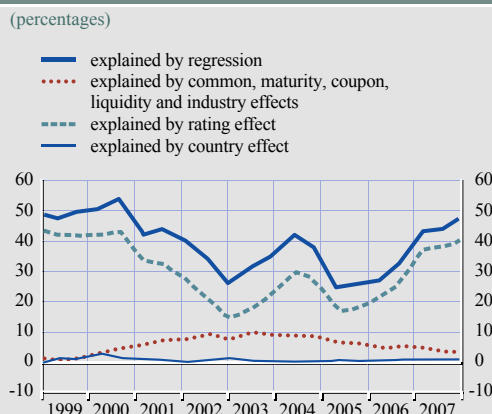
Hence, a variance ratio close to one is obtained when the beta approaches one and when the volatilities of the local and the benchmark bond yield changes are of a similar magnitude. The analysis is based on monthly averages of government bond yields.

The model-based indicator has a monthly frequency.

## CORPORATE BOND MARKET

### PRICE-BASED INDICATORS

**Chart C11 Proportion of cross-sectional variance explained by various factors**



Sources: Merrill Lynch, Bloomberg and ECB calculations.

### Description

This indicator is derived by estimating the following equation using the ordinary least squares (OLS) regression technique:

$$SP_{c,r}^i(\tau, t, z_t) = \alpha_r + \sum_{r=1}^K \gamma_{rt}^r CR_{i,t}^r + \sum_{s=1}^2 \delta_{st}^s S_{i,t}^s + \phi_t z_t^i + \sum_{c=1}^N \beta_{ct} C_{i,c,t} + e_{i,t} \quad (10)$$

where  $SP_{c,r}^i(\tau, t, z_t)$  is the yield spread for corporate bond  $i$  at time  $t$  issued in country  $c$  with  $\tau$  years to maturity, with credit rating  $r$  and

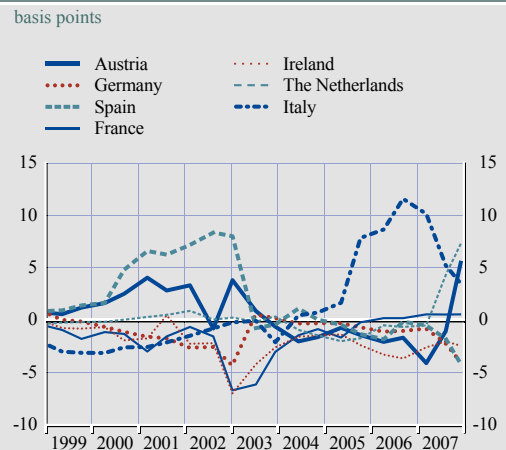


set of instruments  $z_t$ .  $\alpha$  is an intercept common to all corporate bonds,  $CR_{i,t}^r$  is a rating dummy which takes a value of one when corporate bond  $i$  belongs to rating category  $r$  at time  $t$ , and zero otherwise, and  $S_{i,t}^s$  is a sector dummy which takes a value of one for financial corporations, and zero for non-financial corporations. The parameter vector  $\varphi$  groups the sensitivities of the various corporate bonds to the instruments contained in  $z_t$ , namely time to maturity, liquidity, and coupon of the  $i^{th}$  bond. As a proxy of liquidity, we use the ratio of days that the bond has been traded relative to the total number of trading days within each time interval.  $C_{i,c,t}$  is a country dummy that equals one when corporate bond  $i$  belongs to country  $c$  at time  $t$ , and zero otherwise.

The sample is composed of 2,339 individual bonds incorporating euro-denominated investment-grade bonds with a minimum issue size of €100 million. Bonds rated below investment grade and asset-backed bonds are excluded from the analysis. In addition, bonds with less than one year to maturity and bonds which were traded less than once per week in a given four-week time interval are excluded. All euro-denominated bonds not issued in a euro area country are eliminated, as well as data for countries that do not have at least ten corporate bonds in each time interval. This results in an analysis based on a sample of bonds issued in seven countries: Austria, France, Germany, Ireland, Italy, the Netherlands and Spain.

The indicator represents the six-month average of the proportion of cross-sectional variance that can be explained by the various components (common, rating, sector, maturity, liquidity coupon and country effects) over time.

**Chart C12 Estimated coefficients of country dummies**



Sources: Merrill Lynch, Bloomberg and ECB calculations.

#### Description

As a test for integration, it is tested whether the country parameters  $\beta_{c,t}$  in equation (10) are zero, or at least converge towards zero.

**Chart C13 Cross-sectional dispersion of country parameters**



Sources: Merrill Lynch, Bloomberg and ECB calculations.

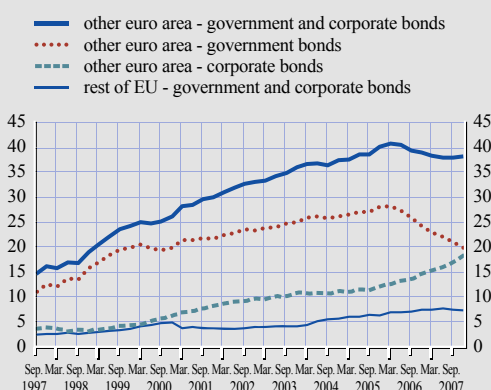
#### Description

This indicator is derived by calculating the average size of the estimated country dummies derived from equation (10). An overall decrease in the dispersion of the country effects would be an indication of increasing integration in the corporate bond market.

## QUANTITY-BASED INDICATORS FOR GOVERNMENT AND CORPORATE BOND MARKETS

**Chart C14 Share of MFI 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)



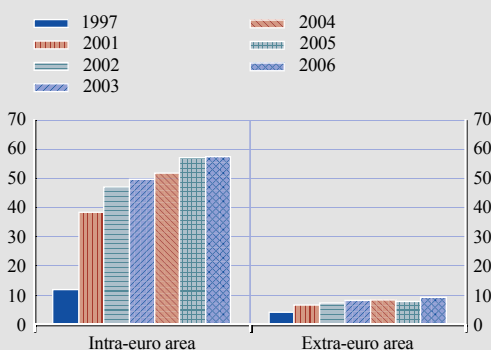
Source: ECB.

### Description

For this indicator, see the indicators on the cross-border securities holdings of the banking markets below.

**Chart C15 The degree of cross-border holdings of long-term debt securities issued by euro area residents**

(percentages)



Sources: BIS, IMF and ECB calculations.

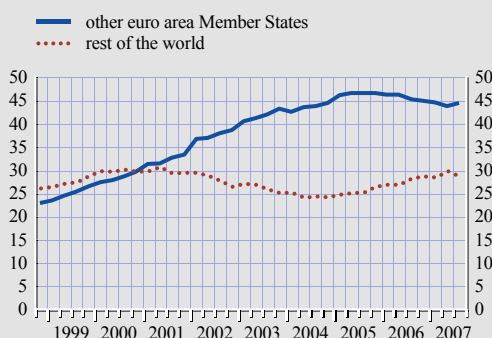
### Description

This indicator, which measures the degree of cross-border holdings among euro area Member States of long-term debt securities, i.e. debt securities with an original maturity of more than one year, is derived in the same way as the similar indicator on the cross-border holdings of short-term debt securities.

The indicator has an annual frequency.

**Chart C16 Investment funds' holdings of debt securities issued in other euro area countries and the rest of the world**

(as a share of total holdings of debt securities; percentages)



Source: ECB.

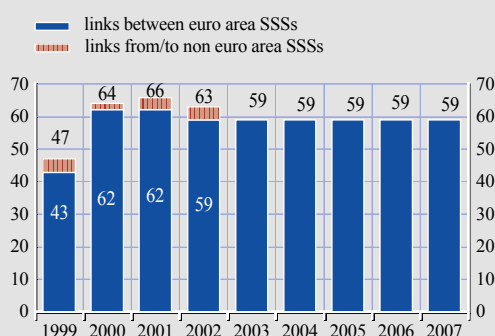
### Description

This indicator shows the share of investment funds' total holdings of all securities other than shares issued by residents of the euro area outside the Member States in which the investment fund is located and by residents of the rest of the world. The composition of the two areas is the one prevailing during the reference period.

The computed indicator has a quarterly frequency.

## INFRASTRUCTURE INDICATORS

**Chart C17 Total number of eligible links for Eurosystem credit operations in the euro area**



Source: ECB.

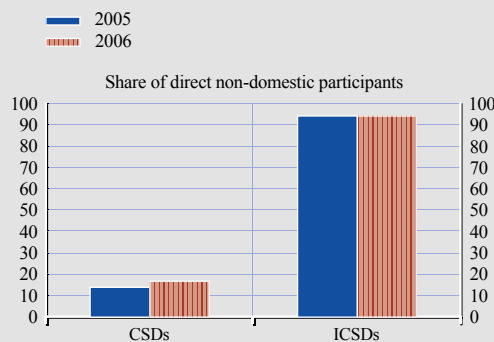
### Description

This indicator counts the absolute number of eligible links used between SSSs for Eurosystem credit operations. The indicator refers to the eligible links in operation at the end of each year.

### Additional information

To be eligible, links have to comply with the ECB Standards for the use of EU SSSs in Eurosystem credit operations. The figures provided reflect the outcome of the assessment of links between SSSs carried out by the Eurosystem at the request of an SSS. As from 2003, figures refer only to eligible links between SSSs located in the euro area, as the ECB Governing Council has decided that, since 1 July 2003, only securities issued and held in an SSS located in the euro area are eligible for Eurosystem credit operations.

**Chart C18 Direct participants in central securities depositories (CSDs)**



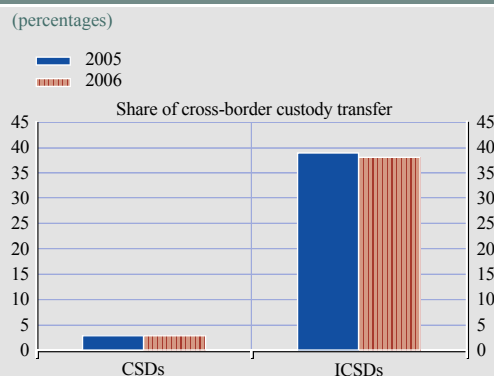
Source: ECB.

### Description

This indicator shows the ratio of direct non-domestic participants to the total number of direct participants. The number of direct participants reflects the number of direct account holders in the case of indirect holding systems and the number of account operators in the case of direct holding systems.<sup>2</sup> A domestic participant is one located in the same country as the reporting CSD. The indicator has an annual frequency.

- 2 In an indirect holding system, it is custodian banks or other CSDs who hold accounts with the CSD, while individual customers (e.g. private individuals) only hold accounts with custodian banks, not directly with the CSD. In a direct system, any private individual can hold an account with the CSD. However, the accounts are operated by only a few companies, the account operators.

**Chart C19 Origin of securities under custody**



Source: ECB.

### Description

This indicator measures the value of securities transferred across borders to a CSD as a share of the total value securities held on account with the reporting CSD. The value of all securities held on accounts with the reporting CSD covers all securities issued or in safekeeping in the reporting CSD, or transferred to the CSD.

The indicator has an annual frequency.

### Additional information

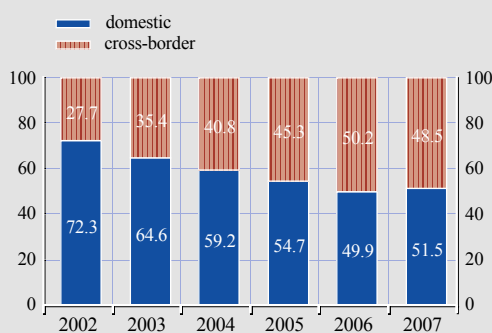
Data for Euroclear Bank by source are not available, so the figure does not include Euroclear Bank.

These indicators represent integration activities that can be observed at the euro area level. However, when interpreting these indicators, it should be borne in mind that integration has occurred not only between entities operating within the euro area, but also at the EU level.

These indicators are based on information published in the ECB Blue Book for the respective years.

**Chart C20 Share of domestic and cross-border collateral used for Eurosystem credit operations**

(as a percentage of the total collateral provided to the Eurosystem)



Source: ECB.

### Description

This indicator measures the proportions of eligible assets used domestically – i.e. within

the same country – and across national borders – i.e. between euro area countries – to collateralise Eurosystem credit operations. The indicator aggregates the data reported monthly by Eurosystem NCBs to the ECB on the domestic use and cross-border use of collateral (composed of both the CCBM and links data).

The computed indicator has an annual frequency.

### Additional information

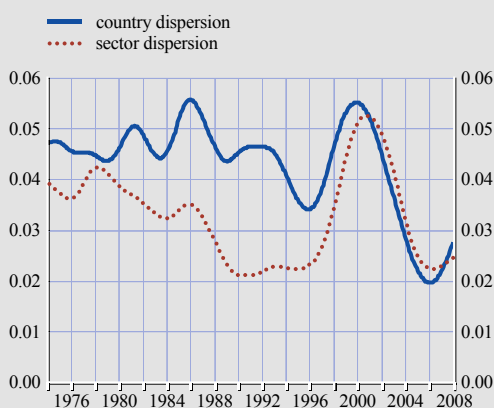
In the current framework, counterparties may transfer cross-border collateral to the Eurosystem via two main channels: the CCBM, which is provided by the Eurosystem; and the links, which represent a market-led solution. The CCBM remains the principal channel, although the proportion of collateral transferred through links has increased.

## EQUITY MARKET INDICATORS

### PRICE-BASED INDICATORS

**Chart C21 Filtered country and sector dispersions in euro area equity returns**

(percentages)



Sources: Thomson Financial Datastream and ECB calculations.

### Description

This indicator is derived by calculating the cross-sectional dispersion in both sector and

country index returns for the euro area countries.<sup>3</sup> Data are calculated on a weekly basis from January 1973 onwards. They include (reinvested) dividends and are denominated in euro. The indicator has a monthly frequency.

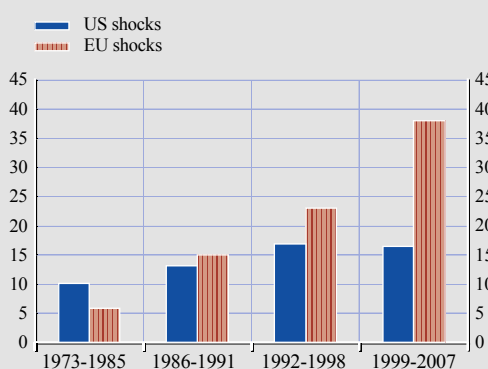
The cross-sectional dispersions are filtered using the Hodrick-Prescott smoothing technique, which provides a smooth estimate of the long-term trend component of the series.

#### Additional information

The indicator reflects structural changes in the aggregate euro area equity market.

**Chart C22 Proportion of variance in local equity returns explained by euro area and US shocks**

(percentages)



Sources: Thomson Financial Datastream and ECB calculations.

#### Description

To compare the relevance of euro area and US shocks for average changes in country returns, the indicators report the variance ratios, i.e. the proportion of total domestic equity volatility explained by euro area and US shocks, respectively. The model-based indicator is derived by assuming that the total variance of individual country-specific returns is given by:

$$\sigma_{c,t}^2 = h_{c,t} + (\beta_t^{eu})^2 \sigma_{eu,t}^2 + (\beta_t^{us})^2 \sigma_{us,t}^2 \quad (11)$$

where  $h_{c,t}$  is the variance of the local shock component. The euro area variance ratio is then given by:

$$VR_{c,t}^{eu} = \frac{(\beta_t^{eu})^2 \sigma_{eu,t}^2}{\sigma_{c,t}^2} \quad (12)$$

and correspondingly for the United States. The conditional variances are obtained from a standard asymmetric GARCH (1,1) model.

For each period, the indicators report the unweighted average of the relative importance of euro area-wide factors, other than US equity market fluctuations, for the variance of individual euro area countries' equity market indices (the "variance ratio"), and the unweighted average of the relative importance of US equity market fluctuations for the variance of euro area equity markets.

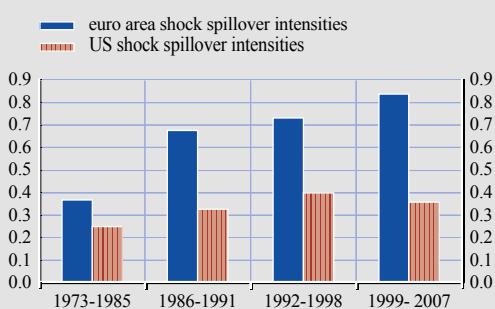
Data refer to the EMU global sector indices, and have been calculated on a weekly basis from January 1973 onwards.

#### Additional information

The variance ratio is derived by assuming that local shocks are uncorrelated across countries and that they are similarly not correlated with the euro area and US benchmark indices.

3 This indicator is based on an approach first presented by K. Adjaouté and J.-P. Danthine (2003), "European financial integration and equity returns: A theory-based assessment", in V. Gaspar, D. Hartmann, and O. Slejpen (eds.), *The transformation of the European financial system*, Second ECB Central Banking Conference, Frankfurt am Main.

Chart C23 Euro area and US shock spillover intensity



Sources: Thomson Financial Datastream and ECB calculations.

### Description

This measure is equivalent to the news-based indicators for the bond market. However, empirical evidence suggests that equity returns are significantly driven by global factors. For this reason, both euro area-wide shocks and US shocks (as a proxy for global factors) are included in the assessment of common news.

To calculate the relative importance of euro area-wide and US stock market fluctuations for local stock market returns, the stock market returns of individual countries are modelled as having both an expected component as well as an unexpected one,  $\varepsilon_{c,t}$ <sup>4</sup>. The unexpected component is then decomposed into a purely local shock ( $e_{c,t}$ ) and a reaction to euro area news ( $\varepsilon_{eu,t}$ ) and world (US) news ( $\varepsilon_{us,t}$ ):

$$\varepsilon_{c,t} = e_{c,t} + \beta_{c,t}^{eu} \varepsilon_{eu,t} + \beta_{c,t}^{us} \varepsilon_{us,t} \quad (13)$$

where  $\beta$  represents the country-dependent sensitivity to euro area or US market changes (of the unexpected component of equity returns).

In order to investigate the development of the betas over time, four dummy variables are introduced representing the periods 1973-1985, 1986-1991, 1992-1998 and 1999-2007.

For each period, the indicators report the unweighted average intensity by which euro area-wide equity market shocks, other than those from the United States, are transmitted

to local euro area equity markets, as well as the unweighted average intensity by which US equity market shocks are transmitted to local euro area equity markets.

Data refer to the EMU global sector indices, and are calculated on a weekly basis from January 1973 onwards.

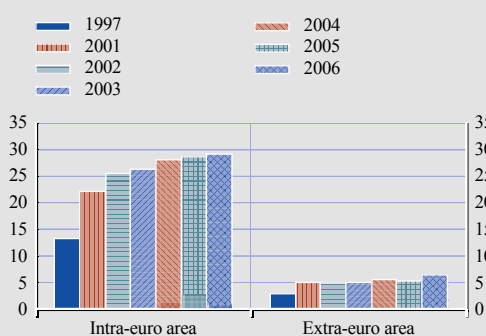
### Additional information

To distinguish global shocks from purely euro area shocks, it is assumed that euro area equity market developments are partly driven by events in the US market. It is furthermore assumed that the proportion of local returns that is not explained by common factors is entirely due to local news.

## QUANTITY-BASED INDICATORS

Chart C24 The degree of cross-border holdings of equity issued by euro area residents

(percentages)



Sources: IMF, Thomson Financial Datastream and ECB calculations.

### Description

This indicator measures the degree of cross-border holdings of equity securities among euro area Member States and is derived in the same way as the respective indicators for short-term

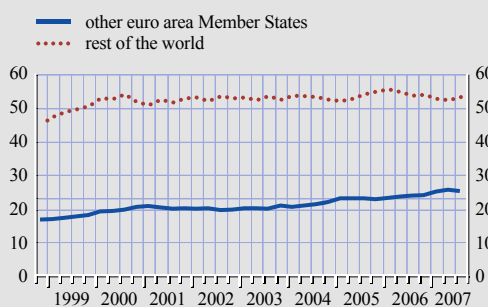
4 The expected return is obtained by relating euro area and US returns to a constant term and to the returns in the previous period. The conditional variance of the error terms is governed by a bivariate asymmetric GARCH (1,1) model.



and long-term debt securities. The computed indicator has an annual frequency.

**Chart C25 Investment funds' holdings of equity issued in other euro area countries and the rest of the world**

(as a share of total holdings of equity; percentages)



Source: ECB.

#### Description

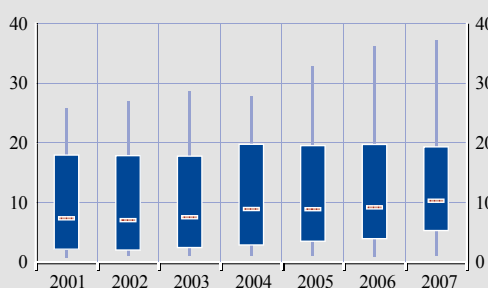
The indicator shows the share of investment funds' total holdings of all shares and other equity (excluding investment fund shares/units) issued by residents of the euro area outside the Member State in which the investment fund is located and by resident of the rest of the world. The composition of the two areas is the one prevailing during the reference period. The indicator has a quarterly frequency.

### BANKING MARKET INDICATORS

#### CROSS-BORDER PRESENCE INDICATORS

**Chart C26 Dispersion of the number of euro area bank branches across euro area countries**

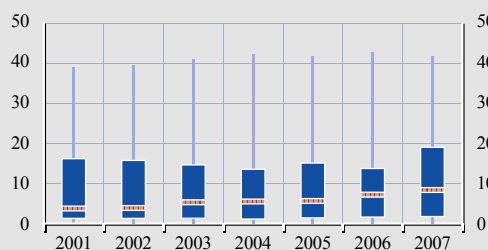
(as a percentage of the total number of banks)



Source: ECB.

**Chart C27 Dispersion of the number of euro area bank subsidiaries across euro area countries**

(as a percentage of the total number of banks)



Source: ECB.

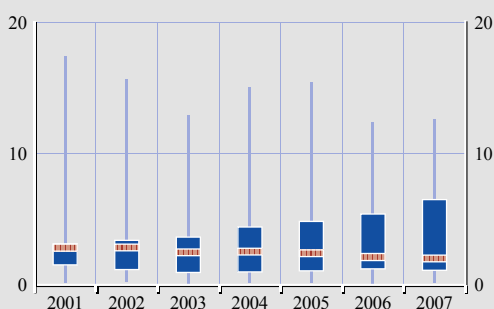
#### Description

These two indicators describe the development over time in the number of foreign branches/subsidiaries of euro area banks (credit institutions) within euro area countries as a share of the total number of domestic credit institutions. Setting up branches or subsidiaries is one way of integrating the euro area banking markets across borders. The level and dispersion of the country data are described by the following dispersion measures: the minimum, the first quartile (25th percentile), the median value (50th percentile), the third quartile (75th percentile), and the maximum.

These computed indicators have an annual frequency. They complement the information on the assets of branches and subsidiaries, as provided by the following two indicators (C 28 and C 29).

**Chart C28 Dispersion of the total assets of euro area bank branches across euro area countries**

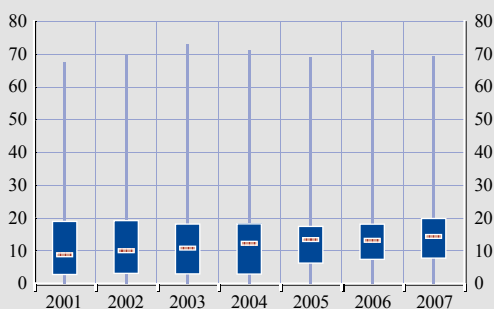
(as a percentage of the total assets of the euro area banking sector)



Source: ECB.

**Chart C29 Dispersion of the total assets of euro area bank subsidiaries across euro area countries**

(as a percentage of the total assets of the euro area banking sector)



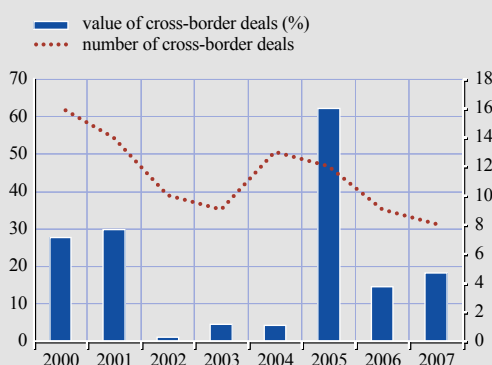
Source: ECB.

### Description

These two indicators describe the development over time of the assets of foreign branches and subsidiaries of euro area banks within euro area countries other than the home country as a share of the total assets of the euro area banking sector. These computed indicators have an annual frequency.

**Chart C30 Euro area cross-border bank M&A activity**

(as a percentage of the total value of euro area banking system M&As and in absolute numbers)



Sources: Bureau van Dijk (Zephyr database) and ECB calculations

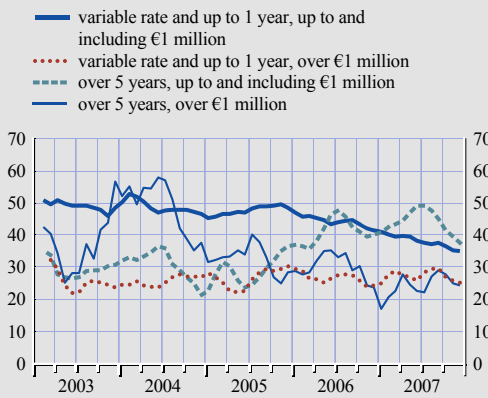
### Description

This indicator shows euro area bank M&A activity as a further measure of the degree of cross-border integration of euro area banking markets. The numerator is composed of the value of all intra-euro area cross-border bank M&As. The denominator is composed of the value of all euro area banking system M&As (i.e. domestic, intra-euro area cross-border and where the acquirer is resident in the euro area and the counterparty is outside the euro area). The absolute number of euro area cross-border M&As per year is also shown. M&A deals include both controlling and minority stakes. All acquisition transactions are taken into account provided the resulting stake is above 10%. This also applies to transactions where the value has not been disclosed as long as the resulting stake is published (and amounts to more than 10%). Acquisitions carried out in multiple transactions are reported in the year in which the ownership exceeded 50%.

## PRICE-BASED INDICATORS

**Chart C31 Cross-country standard deviation of MFI interest rates on loans to non-financial corporations**

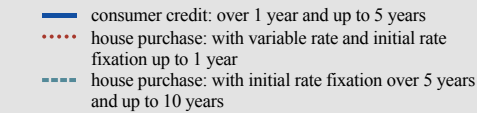
(basis points)



Source: ECB.

**Chart C32 Cross-country standard deviation of MFI interest rates on loans to households**

(basis points)



Source: ECB.

### Description

The price measures for credit market integration are based on MFI interest rates (MIR) on new business reported to the ECB, at monthly frequency as from January 2003.

For the purpose of measuring financial integration, it might be preferable to compute the dispersion of rates as measured by the standard deviation using unweighted interest rates at the level of individual MFIs. However, these data are not available at the ECB, and therefore weighted rates and standard deviations are calculated instead.

The following general notation is used for each of the above categories of loans:

$r_{c,t}$  = the interest rate prevailing in country  $c$  in month  $t$

$b_{c,t}$  = business volume in country  $c$  corresponding to  $r_{c,t}$

$w_{c,t} = \frac{b_{c,t}}{B_t}$  is the weight of country  $c$  in the total euro area business volume  $B$

$$B_t = \sum_c b_{c,t}$$

The euro area MIR is computed as the weighted average of country interest rates  $r_{c,t}$  taking the country weights  $w_{c,t}$

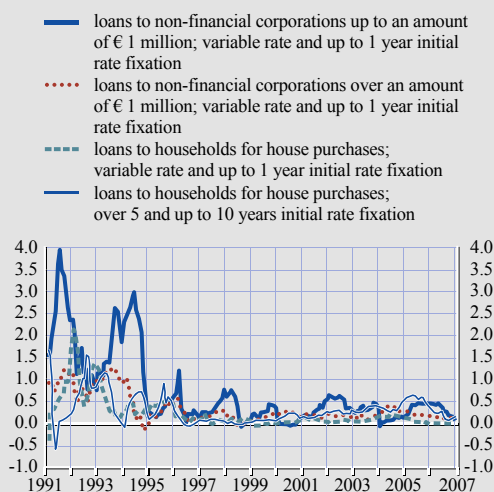
$$r_t = \sum_c w_{c,t} r_{c,t} \quad (14)$$

The euro area weighted standard deviation takes the following form:

$$M_t = \sqrt{\sum_c (r_{c,t} - r_t)^2 w_{c,t}} \quad (15)$$

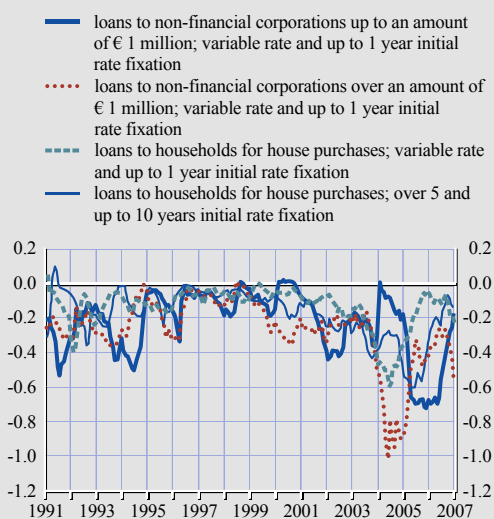
The monthly data are smoothed by calculating a three-month centred moving average of the standard deviation.

**Chart C33 Intercept convergence for selected banking retail interest rates**



Source: ECB.

**Chart C34 Beta convergence for selected banking retail interest rates**



Source: ECB.

### Description

The two indicators are based on MIR on new business reported to the ECB, at monthly frequency as from January 2003. Before that date, estimated historical series have been used.

The beta convergence measure signals the speed with which different rates converge to a specific benchmark. This measure is obtained by running a panel regression of the change in the spread of the relevant retail interest rate in each country relative to the corresponding benchmark rate, i.e. the lowest country interest rate level for each loan instrument. The following panel regression is estimated:

$$\Delta Spr_{i,t} = \alpha_i + \beta Spr_{i,t-1} + \sum_{l=1}^L \gamma_l \Delta Spr_{i,t-l} + \varepsilon_{i,t} \quad (16)$$

using the change in the spread of the relevant retail interest rate in one country relative to the corresponding rate of the benchmark country as a dependent variable ( $Spr$ ).  $L$  denotes the number of lags that is set equal to 1. The coefficients are estimated with a panel regression with fixed effects ( $\alpha_i$ ). A negative  $\beta$  coefficient signals that convergence is taking place. The size of  $\beta$  measures the average speed of the convergence in the overall market. If the beta approaches -1, the convergence is complete. At the same time, large values of the country specific effects ( $\alpha_i$ ) are indicative of persistent market segmentation related to differences in institutional and other factors at the country level.

The conditional betas are derived by estimating the above regression using the first 18 months of monthly averages. Subsequently, the data window is moved one month ahead and the equation is re-estimated until the last observation is reached. A time series for  $\beta_{i,t}$  is then obtained.

The model-based indicator has a monthly frequency.

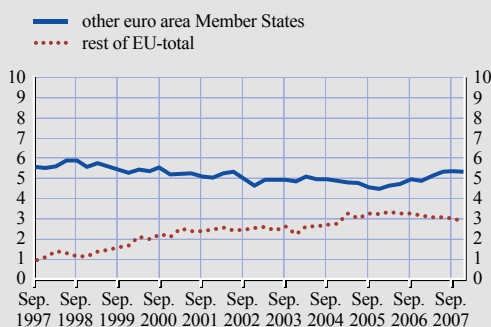
### Additional information

The outcome of the econometric specification depends on the selection of the most appropriate benchmark interest rate, in this case the lowest country's interest level. For the selected interest rates, the benchmark was the French lending rate except in the case of housing loans with variable rate and initial fixation up to one year, where the chosen benchmarks were the Dutch rates.

## QUANTITY-BASED INDICATORS

**Chart C35 Non-interbank deposits – percentage of business with other euro area countries and EU Member States**

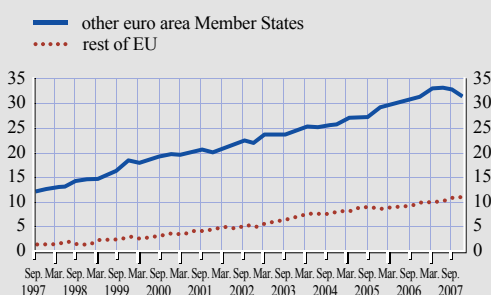
(as a share of total deposits; excluding the Eurosystem; percentages)



Source: ECB.

**Chart C36 MFI holdings of securities issued by MFIs: outstanding amounts by residency of the issuer**

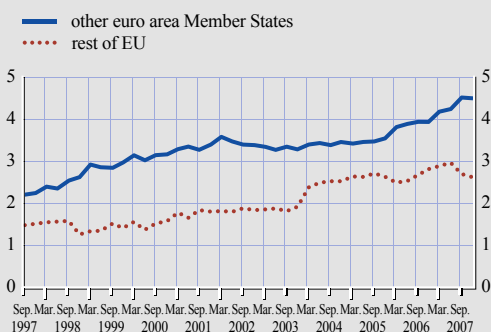
(as a share of total holdings; excluding the Eurosystem; percentages)



Source: ECB.

**Chart C37 MFI loans to non-MFIs: outstanding amounts by residency of the counterparty**

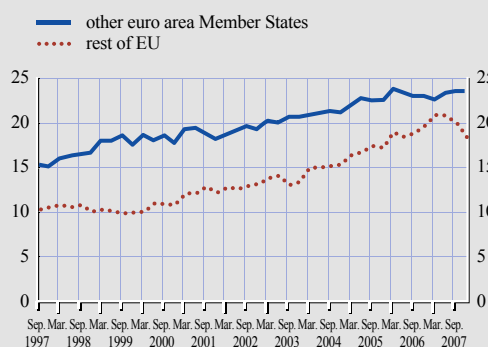
(as a share of total loans granted by MFIs, excluding the Eurosystem; percentages)



Source: ECB.

**Chart C38 MFI loans to MFIs: outstanding amounts by residency of the counterparty**

(as a share of total loans granted by MFIs, excluding the Eurosystem; percentages)



Source: ECB.

### Description

These indicators show the geographical counterparty diversification of loans granted by euro area MFIs (excluding central banks) to the general government, to non-MFI counterparties resident in other euro area countries and to other MFIs resident in non-euro area EU Member States.<sup>5</sup> Similar indicators are computed for deposits with non-MFIs and securities held by euro area MFIs and issued by non-MFIs and MFIs.

The indicators have a quarterly frequency.

### Additional information

These indicators are built on the basis of the national aggregated MFI balance sheet statistics reported to the EC, at a monthly and quarterly frequency.<sup>6</sup>

These balance sheet items are transmitted on a non-consolidated basis. This means that the positions with foreign counterparties include those with foreign branches and subsidiaries.

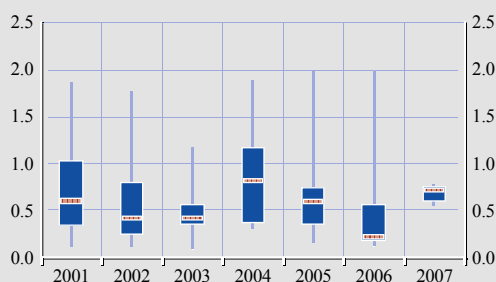
<sup>5</sup> As applicable during the reference period.

<sup>6</sup> These data cover the MFI sector excluding the Eurosystem and also include data on money market funds (MMFs). It is not yet possible to derive indicators that strictly refer to banking markets. Consequently, as MMFs typically invest in inter-MFI deposits and short-term securities, the indicators displaying data for these assets are somewhat affected by the MMFs' balance sheet items. Only for the indicator showing loans to non-MFIs are the statistics for MFIs and for credit institutions the same.

## CORPORATE BANKING INDICATORS

**Chart C39 Cross-country dispersion of gross fees on bond issues charged to euro area resident firms**

(percentage points)

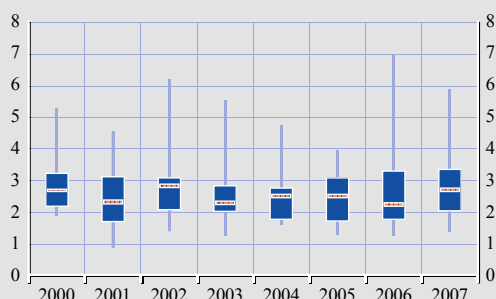


Source: Bondware.

**Chart C40 Cross-country dispersion measures of gross fees on equity issues charged to euro area resident firms**

(percentage points)

Dispersion of gross fees on equity issues charged on EA firms



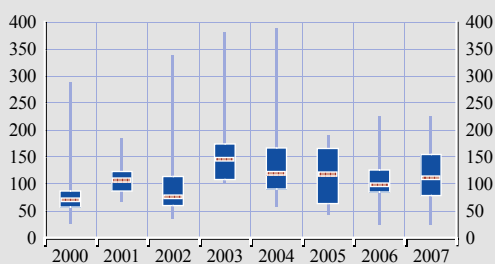
Source: Bondware.

### Description

These indicators show the cross-country dispersion of gross fees on bond and equity issues, respectively, charged to euro area resident firms, whereby the gross fees are composed of total commissions for management, underwriting and selling a new issue, expressed as a percentage of the nominal amount of the issue. The level and dispersion of the country data are described by the following dispersion measures: the minimum, the first quartile (25th percentile), the median value (50th percentile), the third quartile (75th percentile) and the maximum. Each transaction is weighted by the

**Chart C41 Euro area cross-country dispersion of spreads on syndicated loans charged to euro area resident firms**

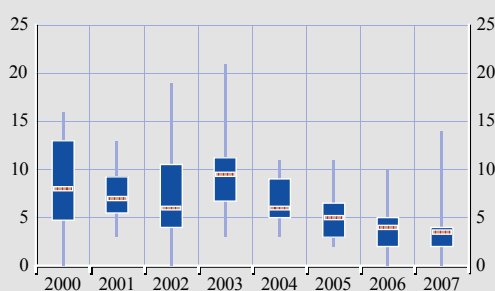
(basis points)



Sources: Dealogic (Loanware) and ECB calculations.

**Chart C42 Cross-country dispersion of fees on syndicated loans charged to euro area resident firms**

(basis points)



Sources: Dealogic (Loanware) and ECB calculations.

size of its nominal amount. The computed indicators have an annual frequency.<sup>7</sup>

### Description

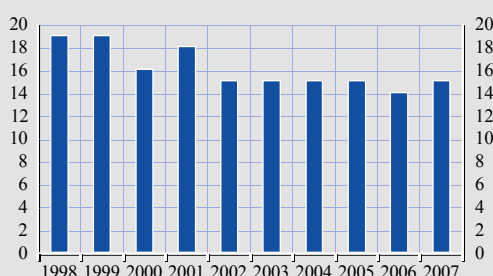
These indicators show the cross-country dispersion measures of the weighted average of spreads and fees, respectively, on syndicated loans where the borrower is from a euro area country. The average margin is the spread, in basis points, over the base rates (e.g. LIBOR). The average fee is calculated as a difference between the average all-in pricing and the margin. The presentation is similar to the one chosen for the previous indicators. Each transaction is weighted by the size of its nominal amount.

<sup>7</sup> For the calculation of indicators 39 and 40, private and public corporations and private and public utilities have been considered. The same applies to indicators 41 and 42.



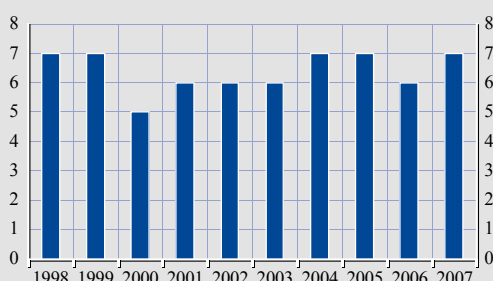
## INFRASTRUCTURE INDICATORS FOR RETAIL PAYMENT SYSTEMS

**Chart C43 Number of retail payment systems in the euro area**



Source: ECB.

**Chart C44 Number of automated clearing houses in the euro area**



Source: ECB.

### Description

The first indicator counts the total number of retail payment systems in the euro area. A retail payment system is viewed as a funds transfer system which handles large volumes of payments of relatively low value in forms such as cheques, credit transfers, direct debits and ATM (automated teller machine) and EFTPOS (electronic funds transfer at point of sale) transactions.

The second indicator counts the total number of retail payment systems which operate in the form of an automated clearing house (ACH) in the euro area. Unlike retail payment systems that operate manually or in real-time processing

mode, an ACH is viewed as an electronic clearing system in which payment orders are exchanged among financial institutions at a central data processing centre.

The frequency of both indicators is annual.

### Additional information

These two indicators are based on the information and definitions reported in the ECB Blue Book for the respective years. When interpreting these statistics, it should be borne in mind that the data collection for the ECB Blue Book is currently voluntary. It is at the discretion of the respective NCBs to select which systems should be reported for the Blue Book on the basis of their significance in the national context.



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