



EUROPEAN CENTRAL BANK

EUROSYSTEM

FINANCIAL INTEGRATION IN EUROPE APRIL 2010

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ABBREVIATIONS

COUNTRIES

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

OTHERS

ABS	Asset-backed security
ACI	Financial Markets Association
AMEX	American Stock Exchange
BIC	Bank identifier code
BIS	Bank for International Settlements
CADES	Caisse d'Amortissement de la Dette Sociale
CBIC	Covered Bond Investor Council
CBPP	Covered bond purchase programme
CCBM	Correspondent central banking model
CCBM2	Collateral Central Bank Management
CCP	Central counterparty
CDO	Collateralised debt obligation
CDS	Credit default swap
CEBS	Committee of European Banking Supervisors
CESAME	Clearing and Settlement Advisory and Monitoring Expert Group
CESR	Committee of European Securities Regulators
CFS	Center for Financial Studies
CLO	Collateralised loan obligation
CLS	Continuous Linked Settlement
COGESI	Contact Group on Euro Securities Issues
CPSS	Committee on Payment and Settlement Systems
CRT	Credit risk transfer
CRD	Capital Requirements Directive
CSD	Central securities depository
CSM	Clearing and settlement mechanism
DTCC	The Depository Trust & Clearing Corporation
DVP	Delivery versus payment
EA	Euro area
EBF	European Banking Federation
EBRD	European Bank for Reconstruction and Development

ECB	European Central Bank
ECBC	European Covered Bond Council
ECBDA	European Covered Bond Dealers Association
Ecofin Council	Council of Economic and Finance Ministers
ECP	Euro commercial paper
ECSDA	European Central Securities Depositories Association
EEA	European Economic Area
EFMLG	European Financial Markets Lawyers Group
EMU	Economic and Monetary Union
EONIA	Euro overnight index average
EPC	European Payments Council
ESCB	European System of Central Banks
ESFS	European System of Financial Supervisors
ESRB	European Systemic Risk Board
EU	European Union
EUREPO	Repo market reference rate for the euro
EURIBOR	Euro interbank offered rate
EX	Euronext countries
FCD	Financial Collateral Directive
FISCO	Clearing and Settlement Fiscal Compliance expert group
FSB	Financial Stability Board
GDP	Gross domestic product
GFS	General functional specifications
GTD	General technical design
IBAN	International bank account number
ICMA	International Capital Market Association
ICSD	International central securities depository
IMF	International Monetary Fund
IOSCO	International Organization of Securities Commissions
ISDA	International Swaps and Derivatives Association, Inc.
ISLA	International Securities Lending Association
KfW	Kreditanstalt für Wiederaufbau
LBO	Leveraged buy-out
LCG	Legal Certainty Group
LTRO	Longer-term refinancing operation
LTV	Loan-to-value
LVPS	Large-value payment system
M&A	Merger and acquisition
MBS	Mortgage-backed security
MFI	Monetary financial institution
MiFID	Markets in Financial Instruments Directive
MMF	Money market fund
NASDAQ	National Association of Securities Dealers Automated Quotations
NCB	National central bank
NTMA	National Treasury Management Agency
NYSE	New York Stock Exchange
OECD	Organisation for Economic Co-operation and Development
OIS	Overnight index swap

OJ	Official Journal of the European Union
OTC	Over the counter
PHA	Proprietary home account
RMBS	Residential mortgage-backed security
ROA	Return on assets
ROE	Return on equity
RTGS	Real-time gross settlement
SCT	SEPA credit transfer
SDD	SEPA direct debit
SEPA	Single Euro Payments Area
SFD	Settlement Finality Directive
SIFMA	Securities Industry and Financial Markets Association
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
TARGET2	Second generation of the TARGET system that commenced operations in November 2007
T2S	TARGET2-Securities
UCITS	Undertakings for Collective Investments in Transferable Securities
UDFS	User detailed functional specifications
UNIDROIT	International Institute for the Unification of Private Law
URD	User requirements document
WFE	World Federation of Exchanges

PREFACE

The aim of the ECB's annual report on financial integration in Europe is to contribute to the advancement of the European financial integration process by analysing its development and the related policies. It is also aimed at raising public awareness of the importance of financial integration, and of the Eurosystem's role in supporting it.

The Eurosystem has a keen interest in the integration and efficient functioning of the financial system in Europe, especially in the euro area.¹ Financial integration is of key importance for the conduct of the single monetary policy, as it fosters a smooth and balanced transmission of monetary policy throughout the euro area. Financial integration is also relevant for financial stability; on the one hand, it enhances the opportunity for risk diversification and improves access to financial markets; on the other hand, it may increase the scope for spillover effects and contagion. Moreover, financial integration is linked to the Eurosystem's task of promoting the smooth operation of payment systems, including the safe and efficient functioning of securities clearing and settlement. Finally, the Eurosystem supports, without prejudice to price stability, the objective of completing the Single Market in order to realise the full economic potential of the European Union.

In pursuing these goals, the Eurosystem supports also activities conducted by the private sector and by other European institutions. In particular, the ECB works in close cooperation with the European Commission, which has a primary responsibility for Single Market policies. This report complements the monitoring work undertaken by the Commission in the field of European financial integration.² It focuses mainly on issues pertaining to the euro area but where relevant it also addresses issues from an EU perspective.

- 1 Financial integration is part of the Eurosystem's mission statement; for details, see the ECB's website at www.ecb.europa.eu.
- 2 See, in particular, the European Commission's annual European Financial Integration Report.

EXECUTIVE SUMMARY

This report³ comprises three main chapters.

Chapter I, together with the Statistical Annex, sets out the ECB's assessment of the degree of financial integration and development in the different segments of the euro area financial system – money, bond, equity and banking markets, as well as the underlying market infrastructures. The chapter highlights those market segments that are lagging behind and points to a few salient implications of the financial crisis for the integration process.

As observed in previous reports, the degree of integration varies considerably across the different market segments, depending partly on the characteristics of the underlying market infrastructures. As a rule, integration is the more advanced the closer the market is to the single monetary policy and the more integrated the underlying market infrastructure is.

The crisis affected financial markets to very different degrees. The most integrated ones, such as the money markets, showed clear signs of retrenchment within national borders. The bond and retail banking markets, by contrast, were less affected, and the equity markets did not show any appreciable retreat from cross-border integration. This report specifically illustrates that, as financial markets gradually returned to more normal conditions in 2009, the markets that had suffered most from the crisis also returned more rapidly and clearly towards their pre-crisis integration levels.

In Chapter II, *Special Feature A*, “Banking integration and supervision in the EU”, looks at the trends in cross-border banking integration over the past year, and at the recent proposals for a new EU supervisory architecture from a financial integration perspective.

Financial integration has advanced well over time in the wholesale activities of banks. Retail banking, by contrast, continues to lag behind, largely owing to legal, regulatory and information-related barriers, but also to the fragmented underlying infrastructure and

payment instruments. Conversely, the financial crisis has affected the cross-border wholesale and securities activities markedly, while the impact on retail banking has remained low. Cross-border mergers and acquisitions (M&As) in the banking sector decreased significantly in the wake of the crisis. Care should be taken that measures adopted by authorities to address the financial stability concerns resulting from the financial crisis do not lead to a fragmentation of the Single Market.

Besides meeting the financial stability challenges of increasingly integrated financial markets, the new European System of Financial Supervisors (ESFS) is expected to contribute to financial integration through the promotion of a single set of prudential rules and the equal treatment of market participants. The new European Systemic Risk Board (ESRB) will also contribute indirectly to financial integration, as enhanced financial stability will allow market participants to more fully exploit the opportunities offered by cross-border activities.

Special Feature B is entitled “European covered bonds”. Over the past decade, covered bonds have become a key funding instrument for European banks, and nearly all Member States now have a specific legal framework in place that supports their issuance, although with major legal and regulatory differences across countries.

Integration in the European covered bond markets has made progress since the introduction of the euro. However, markets continue to be considerably fragmented, and investors still show a significant home bias. The financial crisis has increased the cross-country dispersion in covered bond spreads. Moreover, primary market issuance dropped significantly and secondary market liquidity dried up. The Eurosystem successfully revitalised the market through the covered bond purchase programme launched in July 2009.

³ This is the fourth report published by the ECB on the subject. The reports are available on the ECB's website at www.ecb.europa.eu.

There is still considerable scope for further integration of this market, in particular by improving the clarity, simplicity and comparability of the different legal frameworks. The development of a common standard or definition for covered bonds would be an important step in that respect. Various market-led initiatives are underway to address these concerns.

Special Feature C looks at “Harmonisation in the post-trading sector”. Securities clearing and settlement systems play a crucial role with respect to financial integration and stability, as underscored by the crisis. Integration in this area, however, continues to be hampered by legal, fiscal and technical obstacles. The Special Feature reviews the EU’s main harmonisation initiatives in the post-trading sector, focusing on the Eurosystem’s contribution in particular.

This contribution takes various forms, with the Eurosystem acting as overseer (for instance, in the case of the ESCB-CESR Recommendations), operator (e.g. CCBM2 and T2S), or catalyst (e.g. by monitoring the implementation of the self-regulatory Code of Conduct for market infrastructures). Although T2S will provide one of the most important tools for delivering a harmonised and integrated post-trading trading infrastructure for securities transactions in euro, it alone will not achieve full harmonisation. The Eurosystem will therefore continue to actively support other complementary initiatives to further harmonise post-trading processes, bringing its own perspective and expertise into the debate to ensure progress is made towards a more integrated, efficient and resilient securities infrastructure for Europe.

Special Feature D reviews the academic literature on “Stability implications of financial market integration and development”. Well-integrated and developed financial systems improve efficiency and risk-sharing, and may also possess enhanced shock-absorbing capacity. Under certain conditions, however, systemic risk may be increased on account of a higher scope for contagion across countries, more risk-

taking and higher volatility in financial markets; market participants’ incentives may change and market transparency could be reduced as well.

As regards the relationship between financial integration and financial stability, topics such as the impact of financial globalisation and openness, the increasing importance of cross-border banking, the behaviour of the well-integrated interbank market during the crisis and the increased interdependence between financial markets are addressed.

As to the relationship between financial development and financial stability, the Special Feature investigates financial innovation and, in particular, the new instruments for transferring credit risk. Moreover, it reviews the role of central counterparties as a way to reduce the counterparty risk for over-the-counter (OTC) derivatives. Finally, the role of marking-to-market accounting in the financial crisis is discussed.

Policies that could help contain the transmission of instability in integrated financial markets include greater transparency, as well as more effective macro-prudential supervision and crisis management. Furthermore, the academic research identifies specific suggestions that merit further reflection in the context of financial reform.

Chapter III provides an overview of the main activities that the Eurosystem has pursued in 2009 with the view to advancing financial integration in the euro area.⁴

First, as regards the provision of advice on the *legislative and regulatory framework for the financial system*, a major contribution concerned the legal advice on the establishment of the EU’s new supervisory architecture. In the area of financial infrastructure, an important step was taken with the publication of the ESCB-CESR

⁴ Chapter III also supplements the chapter on financial integration in the ECB’s Annual Report 2009.

recommendations for securities settlement systems and central counterparties in the EU.

Second, with respect to the *role the ECB and the Eurosystem play as a catalyst*, support continued for projects that had been initiated earlier, such as SEPA, STEP, the Code of Conduct for Clearing and Settlement and the removal of the so-called Giovannini barriers to efficient cross-border clearing and settlement. In the wake of the financial crisis, the ECB and Eurosystem, together with participants from the financial industry, have also been involved in initiatives to reactivate the structured finance market, which is the market segment that suffered the most during the crisis.

Third, in the field of *enhancing knowledge, raising awareness and monitoring the state of financial integration*, the ECB continued its work on financial integration and development indicators, as well as on financial market statistics. The ECB was also involved in various research initiatives related to financial integration, in particular through the ECB-CFS Research Network. Research papers delivered within the scope of the ECB's Lamfalussy fellowship programme in 2009 addressed different aspects of the interplay between financial integration, market efficiency, risk-allocation and risk-creation, and stability.

Finally, with regard to *central bank services that foster financial integration*, the focus was on the smooth operation of the TARGET2 system against the background of very challenging market conditions and the continued work on the T2S project with the aim of starting operations in 2013.



CHAPTER I

RECENT DEVELOPMENTS IN FINANCIAL INTEGRATION IN THE EURO AREA

This chapter illustrates the main developments of financial integration in the euro area in 2009. As described in the ECB's 2009 Report on financial integration in Europe (hereinafter referred to as the "2009 Report"), the tensions in the financial markets, particularly acute in the last quarter of 2008, had resulted in a tendency of many market segments to retrench within national borders. The main focus of this year's report is on how markets have evolved since. At the beginning of 2009 and more clearly in the middle of the year, the tensions in money and financial markets progressively eased and cross-border integration improved, more markedly and rapidly in those market segments that had suffered most during the financial turmoil. Joint contributing factors were an improved climate in international financial markets and the policy actions undertaken by the Eurosystem as well as other authorities.

I INTRODUCTION

This chapter reviews the most significant developments in the integration of main segments of the euro area financial sector in 2009: the money, bond, equity and banking markets.

As discussed in depth in the 2009 Report, the financial crisis has had a profound impact on euro area financial convergence, particularly in the last months of 2008. Hence, the focus in this report remains on the consequences of the crisis and, in particular, on how integration has evolved during the recent months in which financial markets have gradually started to function properly again. The analysis builds on a detailed set of financial integration indicators, updated – as in the past – to reflect the most recent information available.

The 2007-08 financial turmoil affected the euro area financial sector in ways that differed considerably across market segments and countries. A consequence was a temporary

retrenchment of market activity within national borders, to differing degrees across market segments. The impact was felt most strongly in the money markets, and relatively less in bond and banking activities, while the equity market was affected little or not at all. The return to more normal conditions in recent months followed a similar pattern in reverse, with the most dramatic improvements taking place in money markets, as will be described in detail below.

This outcome reflected the improved climate of expectations in financial markets, globally and in the euro area, and benefited in particular from the measures put in place by central banks and other policy-makers to support, or temporarily supplement, the functioning of the banking and financial markets and to limit the contraction of aggregate demand.

The Eurosystem was particularly proactive in the money markets during the crisis period. Its refinancing techniques were strengthened substantially in the autumn of 2008, namely by lengthening the maturities of open market operations, by moving to a fixed-rate tender and full-allotment procedure and by extending the list of assets eligible as collateral.¹ Reflecting the beneficial effect of this action on financial integration, the usual indicators of cross-border activity and price dispersion commented in this report, which had worsened dramatically at the peak of the crisis, have gradually recovered since the beginning of 2009. Further measures adopted by the ECB's Governing Council in 2009 consolidated these improvements further. In particular, the Governing Council adopted a programme in the spring of 2009 that comprised three one-year longer-term refinancing operations (LTROs) and additional forms of "enhanced credit support" (such as the purchase of covered bonds), thereby contributing to the easing of tensions in the money and financial markets. These actions – combined with the measures taken by national governments, including further guarantees and

¹ See the descriptions published periodically in the ECB's Monthly Bulletin.



capital injections – helped to extend the improvements from the money markets to the banking and other market segments.

The high degree of financial integration achieved in the euro area in the decade prior to the crisis appears to have acted as an anchor, preventing a widespread disintegration of markets at the peak of the crisis and limiting the risks of a more lasting impact from it.

2 OVERVIEW OF THE FINANCIAL MARKET SEGMENTS

The overall size of the capital markets, represented by the aggregate volume of shares, bonds and loans outstanding in the markets as a share of GDP, continued on an upward trend despite the adverse conditions since mid 2007 (see Chart 1). The growth of capital market size in the euro area was close to that observed in the United States over the period under analysis. This mirrors the global trends – the size of capital markets has grown steadily over the past fifteen years in virtually all developed

economies, with a tendency to converge. Some convergence in size has also been observed across euro area countries, with countries with smaller ratios showing a generally higher average growth than others.² These are, however, very slow developments, that can be appreciated only over a number of years.

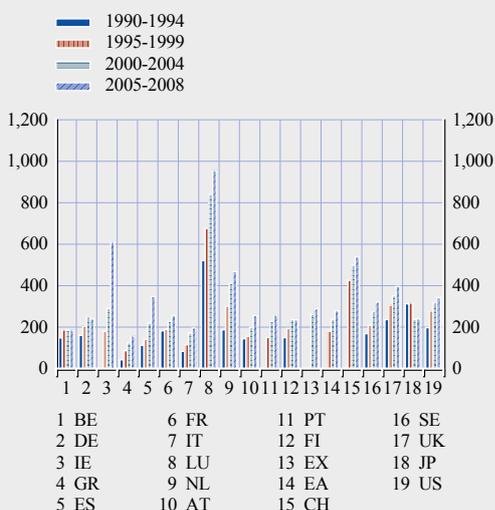
MONEY MARKETS

The euro area money market has been characterised by a high degree of integration since shortly after the introduction of the euro. Given its function of channelling funds to enable banks to cover their most immediate funding needs, the money market is by nature vulnerable and sensitive to counterparty risk. For this reason, it was strongly affected by the crisis, but was also the market where the recovery has been more prompt and evident. A full assessment of the impact of the crisis on financial integration will only be possible after some time. However, the latest evidence from the indicators of financial integration described in this report suggests a gradual return to a normal functioning of the market. Taking the sudden deepening of the crisis following the bankruptcy of Lehman Brothers (September 2008) as the starting point, three phases can be distinguished. In the first, discussed extensively in last year's report and lasting roughly until the end of 2008, the turbulence had a sharp negative impact on market integration. The second, until May-June 2009, was characterised by a gradual return to more stable conditions. Finally, in the months thereafter, the further support measures adopted by the ECB's Governing Council contributed to strengthen and consolidate those gains, with further beneficial effects also on financial integration.

During the second phase, the improvement in the activity indicators – encompassing both prices and quantities – reflected the gradual effect of the various policy actions undertaken

Chart 1 Size of capital markets

(aggregate volume of shares, bonds and loans to the private sector as a percentage of GDP)



Sources: WFE, IMF, Datastream, Eurostat and ECB calculations.

2 Notable exceptions are small financial centres such as Luxembourg and Ireland.

in the last quarter of 2008, as well as the improved international environment. A key element in improving market conditions, also from the perspective of cross-border integration, was given by the Eurosystem's "enhanced credit support" measures, in particular the fixed rate tenders with unlimited amounts and maturities of up to one year.

The pace of improvement accelerated further after the announcement and subsequent settlement of the first one-year LTRO (7 May and 25 June 2009 respectively). The first one-year LTRO attracted unprecedented demand, both in terms of volume (€442 billion were allotted) and in terms of the number of participating banks (1,121 bidders). The demand in the second one-year LTRO, conducted on 30 September 2009, was lower (€75 billion), but the number of bidders remained high (589 banks). The third and last one-year LTRO, conducted on 16 December 2009, attracted fewer banks (224 banks) for a total allotted amount of €97 billion.

The substantial liquidity surplus that resulted and the stability signals provided by the longer-term refinancing put significant downward pressure on short-term interest rates. The EONIA – which measures banks' overnight funding costs – moved lower and closer to the Eurosystem's deposit facility rate, with overnight operations trading close to, or – in some cases – even below, the deposit facility rate.³ The one-year LTROs also contributed to a significant decline in forward and longer-term rates. Both the unsecured and secured cash curves have shifted significantly downwards since the first operation. By the end of 2009, the three-month EURIBOR fixing in the unsecured market declined to below 0.70%, from around 1.20% before the operation, the six-month fixing was below 1%, down from 1.40%, while the 12-month fixing was below 1.25%, from 1.58%. A similar pattern was visible in the EONIA swap curve, which declined sharply after the first one-year LTRO. In July 2009, following the ECB's press conference after the Governing Council meeting, overnight index swap (OIS)

rates declined further, reflecting market participants' expectations that ample liquidity conditions would prevail for some time to come.

Price-based indicators reveal that, notwithstanding the still evident effect of the crisis on the overall dispersion of funding rates across countries, a convergence of cross-border funding costs has taken place recently, supported by the Eurosystem-wide provision of liquidity. Quantity-based indicators, by contrast, suggest the opposite, as they show an increase in the domestic component for turnover in the unsecured and repo money markets.

While the vast amount of liquidity provided by the Eurosystem was the major force behind financial convergence, as illustrated by the dispersion of money market rates, from the quantity side a retrenching towards domestic funding was observed. Indeed, the limited effect of policy measures on quantities, as compared with prices, indicates that the impact of the crisis on money market integration is still far from coming to an end.

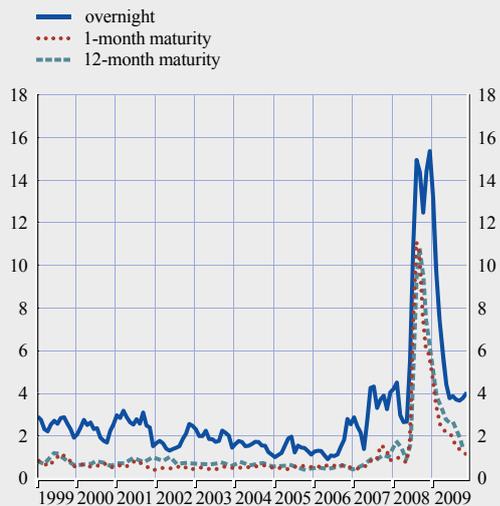
PRICE-BASED INDICATORS OF INTEGRATION

The cross-sectional standard deviation of the overnight EONIA lending rates across euro area countries increased, from a level of 1 basis point in 2006, to 4 basis points in mid-2007, then reaching more than 15 basis points in October 2008 and in the second quarter of 2009 before returning to 4 basis points by August 2009 (see Chart 2 and Chart C1 in the Statistical Annex). The period of high cross-country dispersion, spanning roughly from the Lehman Brothers' demise to the beginning of 2009, correspond to the period of most acute and widespread uncertainty about counterparty resilience. Since it is not possible in many cases to ascertain whether the counterparties are located domestically or internationally, and the

³ For instance, banks issuing STEP notes on the French short-term paper market could refinance themselves at rates below 0.25% for all maturities of up to nine days.

Chart 2 Cross-country standard deviation of the average unsecured interbank lending rates across euro area countries

(61-day moving average; basis points)



Sources: EBF and ECB calculations.

precise nature and extent of the risks they are subject to, price measures reflect a mix of varying perceptions and expectations on the part of market participants, coupled with a high degree of risk aversion.⁴

After peaking at the end of 2008, partly due to window-dressing behaviour, the cross-country dispersion of money market lending rates declined significantly after the turn of the year and in the first quarter of 2009, although there was still noticeable day-to-day volatility. The positive effect of the Eurosystem measures announced in early May 2009 on the euro money market marked the transition to the more recent phase of the crisis. The last time at which the daily standard deviation was at a value above 15 basis points was on 29 April 2009, with 24 June 2009 marking the last date at which the daily standard deviation reached a level above 10 basis points.

Similar developments to those observed in the overnight market were also evident – albeit less dramatically – across longer maturities, reflecting the drying up of liquidity across a significant maturity spectrum and suggesting the

existence of high perceived counterparty risk for market participants engaged in wholesale-based funding strategies with maturity transformation. Unlike the overnight market, however, cross-country dispersion of longer maturity rates in the euro area only increased sharply in the aftermath of the collapse of Lehman Brothers. Indeed, the high cross-country dispersion of interbank rates prevailing in early 2009 was limited to the short end of the money market yield curve (maturities of less than one month).

An in-depth analysis of the dispersion of interbank rates within and across countries in the euro area provides another perspective of the regional characteristics of uncertainty. A comparison of the standard deviation of the EURIBOR across and within euro area countries reveals that the cross-country segmentations that were so evident in the most acute phase of the crisis, which explain the large spread between domestic and cross-border standard deviation (see Chart 3), have faded away in the more recent months. As the crisis waned, the dispersion of rates within country and across countries gradually converged for both the one-month and the 12-month EURIBOR. This dispersion, however, remained significantly above the levels that characterised the pre-crisis period. This suggests that market functioning remains far from its pre-crisis levels, although there is no significant difference in its extent between the domestic and the cross-border components.

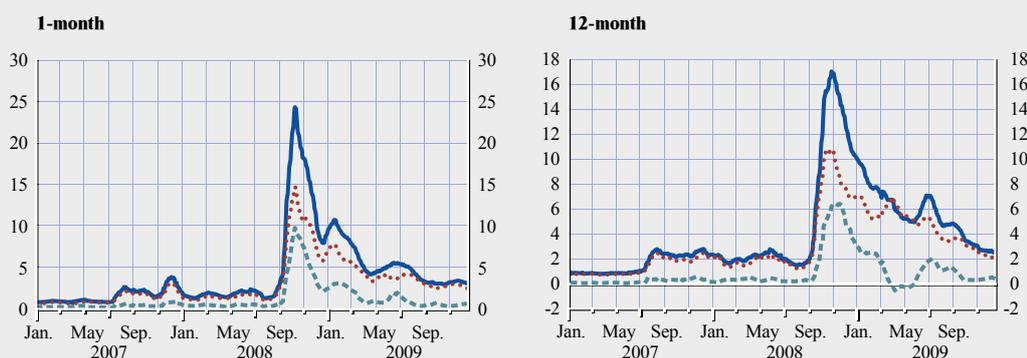
While the price diversity in the early phases of the crisis stemmed largely from the pricing behaviour vis-à-vis foreign counterparties, as noted in the 2009 Report, the remaining dispersion as the crisis eased showed little or no distinction related to the geographical location of the counterparties. This may suggest weaker reasons for concern from the perspective of financial integration. However, this interpretation must be taken with caution, since there is evidence that the mix of market players may have changed as a result of

⁴ See the Statistical Annex for a detailed description of the price-based indicators.

Chart 3 Standard deviation of the EURIBOR

(basis points)

— cross-country
 within-country
 - - - difference



Sources: EBF and ECB calculations.

the crisis, with the more risky ones concentrating on domestic trades, while the larger and safer ones remained active internationally. To the extent that this is the case, cross-country segmentations would not be inconsistent with the evidence of an equal dispersion, regardless of location, that emerges from the data.

Comparable indications emerge from the dispersion of rates in the secured money market segment, although the patterns there were more subdued (see Chart 4).

Not only was the magnitude of the impact of the crisis on rates' cross-country dispersion half as large as that of unsecured rates, but also the duration was shorter, and prevailing conditions as of September 2009 were almost at pre-crisis levels for the one-month repo rate. The subsequent increase in the dispersion since then 2009 owes much to the technical particularities of the secured repo market.⁵

The fact that, by their nature, collateralised transactions reflect the security provided by the collateral, which is similar across borders in most cases, would seem to explain the lower dispersion observed. Likewise, the abundant liquidity provided, also against collateral, by the Eurosystem at favourable conditions

played a key role in restoring better pricing conditions in this market segment – more so than in the unsecured one – as it addressed the high demand for repos, and thereby their price. This is also supported by the finding that the dispersion of interest rates on longer maturities

5 Even though Eurepo contributions should be related to the most liquid euro area government paper, an earlier definition referred to all euro area governments. It included quotes from some participants referred to collateral that experienced a significant rise in repo rates. For example, in early October 2009, the Greek fiscal deficit forecast was doubled and Greek collateral traded at higher rates in the repo market.

Chart 4 Cross-country standard deviation of the average interbank repo rates across euro area countries

(61-day moving average; basis points)

— 1-month maturity
 12-month maturity



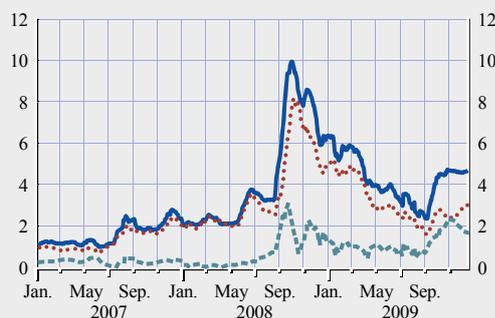
Sources: EBF and ECB calculations.

Chart 5 Standard deviation of EUREPO rates

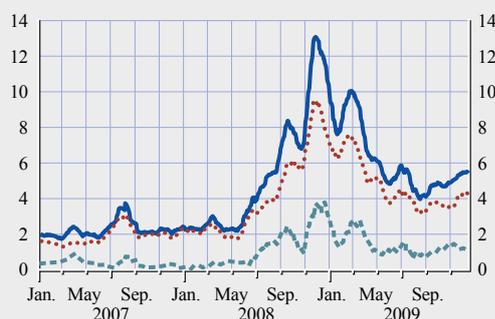
(basis points)

— cross-country
 within-country
 - - - difference

1-month



12-month



Sources: EBF and ECB calculations.

took longer to return to lower levels; a sharp decline in the dispersion was only seen after the launch of the one-year LTROs. Indeed, the last daily cross-country standard deviations of the 12-month EUREPO rates above 8 and 6 basis points were at the end of April (prior to the announcement of the one-year LTRO) and at the end of June (the time of its first settlement) respectively.

As was the case in the unsecured money market, comparing the standard deviations across the euro area with the within country average for the (secured) EUREPO rates suggests that country-specific factors declined in importance in driving both the one-month and the 12-month EUREPO rates by September 2009: the difference in the dispersion of rates between within and across

countries converged to values close to those that had prevailed prior to the most acute phase of the crisis, then increased after September 2009 for the reasons explained above (see Chart 5). The remaining rate dispersion for secured transactions seems to have lost the bulk of the geographical component observed at the peak of the crisis, and now reflects a more generalised diversity of perceptions about counterparty risk.

Factors other than the residence of market participants may have influenced the dispersion of interbank rates in the more recent months. Anecdotal information suggests that one may have been the uncertainty about banks' own liquidity needs in the face of funding uncertainty. It is also evident that both the announcement of the one-year LTROs and the settlement of the first one had a substantial positive effect on market integration. The gradual withdrawal of these measures will reveal the extent to which the integration of money markets returns to pre-crisis levels.

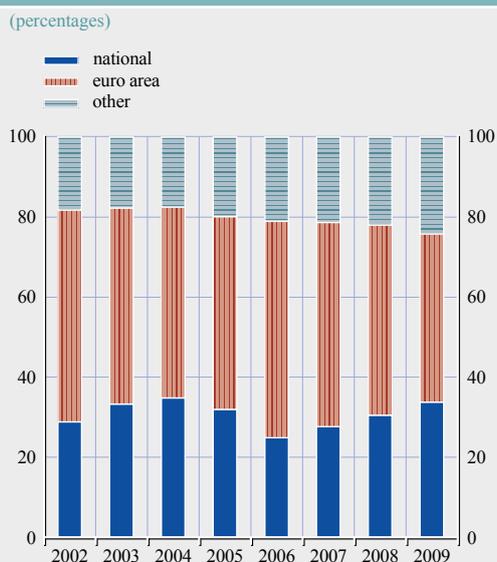
QUANTITY-BASED INDICATORS OF INTEGRATION

A growing exposure of banks to domestic rather than cross-border counterparties was observed 2009 in both the unsecured and the secured markets (see Charts 6 and 7).⁶ For the unsecured volumes, the upward trend of activity with domestic counterparties appears to have been initiated as early as 2006, and can thus not be ascribed to the crisis alone, although the crisis subsequently played an important role. The drop in lending turnover was concentrated mainly on longer maturities (for instance, decreases of 47% and 56% were registered in the one to three-month and in the three-month to one-year segments respectively).

According to the Euro Area Money Market Survey of September 2009, the impact of the crisis on turnover in the unsecured market was substantial, with 2009 average daily lending turnover falling 20% against 2008 levels.

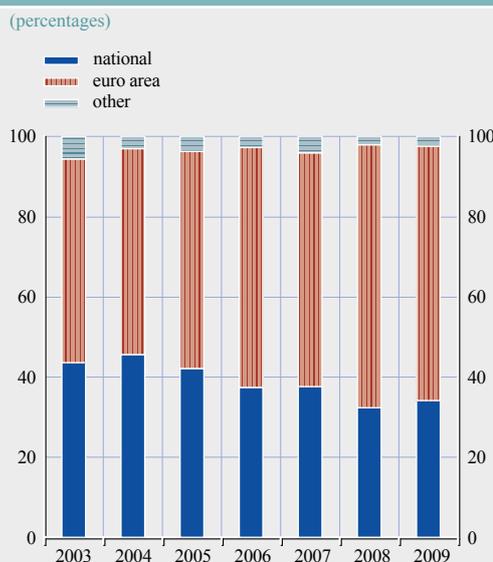
⁶ See *Euro Money Market Survey 2009*, ECB, 24 September 2009 (available on the ECB's website at www.ecb.europa.eu).

Chart 6 Geographical counterparty breakdown for unsecured transactions



Source: ECB's Euro Money Market Survey 2009.

Chart 7 Geographical counterparty breakdown for secured transactions



Source: ECB's Euro Money Market Survey 2009.

Half of the market participants indicated in September 2009 that the unsecured market did not work efficiently and an equal share found that conditions had worsened relative to 2008.

The impact of the crisis in the secured money market was less clear. The share of domestic transactions declined between 2007 and 2008, rising again in 2009 (see Chart 7). This increase was remarkable, as it took place – unlike the decrease registered in 2008 – against the backdrop of increasing borrowing and roughly stable lending volumes.

In terms of the turnover maturity structure, there was a clear tendency to shorter maturities, with overnight transactions accounting for close to 30% in 2009, compared with well below 20% in 2007.

It is hard to predict at this stage how lasting the negative effect of the crisis on the activity of secured and unsecured money markets will be, especially considering that the liquidity provision by the Eurosystem will play less of a supporting role in the coming months.

OTHER INDICATORS

In contrast to the unsecured and secured money market segments, the market for short-term securities has shown only limited signs of integration since the introduction of the euro, mainly because of differences in market practices and standards, legal systems and regulatory frameworks.

Notwithstanding the domestic nature of commercial paper markets, the STEP initiative – which fosters the integration of this market by promoting the convergence of market standards – has proved successful.⁷ Securities with a STEP label developed in recent years more dynamically than euro denominated commercial paper (see Chart 8). Partly underlying this development is the eligibility of commercial paper with the STEP label as collateral for Eurosystem credit operations, underlining the important role that harmonised requirements at the euro area level – in this case

⁷ See “Special Feature B – The STEP initiative”, *Financial Integration in Europe*, ECB, April 2008, and Chapter III of this report.

the Eurosystem's criteria for the eligibility of collateral – can play in fostering market integration.

A second dimension of policy initiatives with an impact on the integration of money markets is the settling since 1999 of large-value euro payments in TARGET. Of particular relevance was the enhanced and technically integrated second generation system which has been in operation since May 2008 and which is based on a single shared platform that allows the provision of a harmonised service level, ensures a single price structure and benefits from economies of scale supporting lower average prices.

In 2009, TARGET had a market share of 89% by value and 60% by number of payments processed in the two large-value payment systems in euro, with the remainder being accounted for by EURO1.

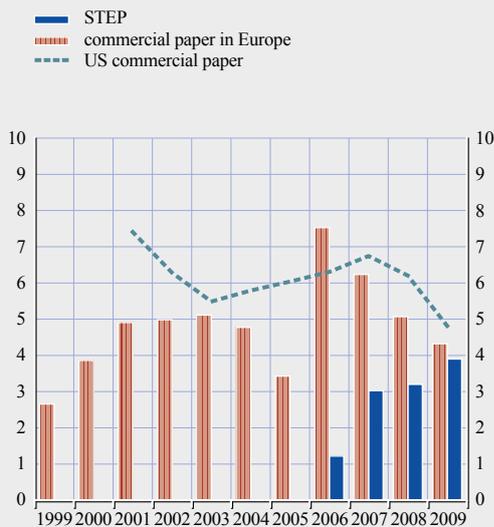
BOND MARKETS

The financial turmoil has had a strong impact on most euro area bond markets.

The impact of the crisis on government bond markets was widely heterogeneous. Some sovereign bond markets benefited from a “flight to safety” effect as investors sought to reduce risk by purchasing government securities and became more selective in evaluating borrowers' creditworthiness. Euro area sovereign spreads vis-à-vis the German benchmark rose sharply during the financial turmoil, particularly in the final months of 2008. Since March 2009, the sovereign spreads have decreased substantially. However, at the end of 2009, they still remained well above the pre-crisis levels (see Chart 9), with Greek and Irish spreads remaining wide.

Chart 8 Outstanding amounts of commercial paper

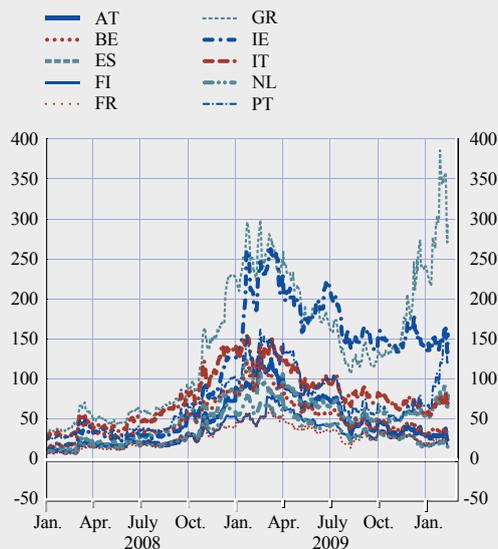
(percentage of GDP)



Sources: ECB, Euroclear, Banque de France, Dealogic and Federal Reserve.

Chart 9 Ten-year government bond yield spread vis-à-vis the German bond

(daily data; basis points)



Source: Thomson Reuters Financial Datastream.

The generalised decrease in spreads in 2009 may partly be related to a repricing of credit risk as a result of relative differences in the creditworthiness of sovereign issuers (a country-specific effect), and partly to improved market liquidity (a general effect).

An estimate of the credit risk premium can be derived from the credit default swap (CDS) premium on government bonds.⁸ Specifically, the comparison of the individual euro area countries' CDS spread vis-à-vis the German CDS benchmark with the corresponding sovereign yield spread shows that they moved in parallel in the case of Austria, Belgium, Greece, Ireland, Italy, the Netherlands, Portugal and Spain. This suggests that credit default risk is one of the main reasons for fluctuations in the respective credit spreads (see Chart 10).

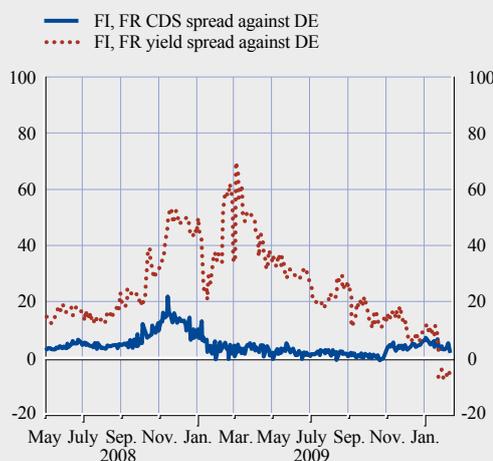
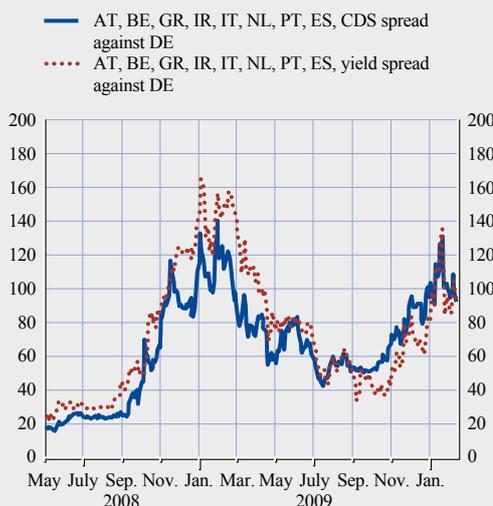
On the one hand, by the end of the year, the difference in the CDS spread vis-à-vis the German five-year CDSs was greatest for Greece and Ireland, the countries that featured the highest budget deficits in 2008 and 2009. Spreads also remained high for Italy, Spain and Portugal. On the other hand, although Austria's budget deficit was considerably below the euro area average in 2008 and 2009 and its public debt is limited, Austria's CDS spread remained at elevated levels. Its elevated CDS premium in comparison with the German CDS premium may possibly be explained by Austrian banks' relatively high exposures to central and eastern European (CEE) countries, many of which are still challenged by the international economic crisis.

CDS spreads have decreased considerably since March 2009, but they remained far above the pre-crisis levels at the end of 2009. This implies that, given the economic outlook, sovereign risk has been repriced and that the country risk factor continues to play a major role.

Conversely, the difference between French and German CDSs fluctuated around zero, while French-German bond yields spreads have risen

Chart 10 Average five-year CDS premia

(daily data; basis points)



Sources: Thomson Reuters Financial Datastream.
 Note: The five-year CDS (yield) spread is computed as a difference between the five-year CDS (bond yield) of the respective countries against the CDS (bond yield) of Germany.

with the financial turmoil. Similar developments occurred for Finland. Given that the CDS spread captures the country risk factor, the gap between the CDS spread and the bond yield

8 A CDS is a swap contract in which the *buyer* of the CDS makes a series of payments to the *seller* and, in exchange, receives a payoff if a credit instrument (typically a bond or loan) goes into default. CDSs are traded over-the-counter and their degree of liquidity may vary, hence the information drawn from their prices should be treated with care.

spread can be explained mainly by differences in liquidity effects, which – given the size of the Bund futures market – favoured the German bond market.⁹

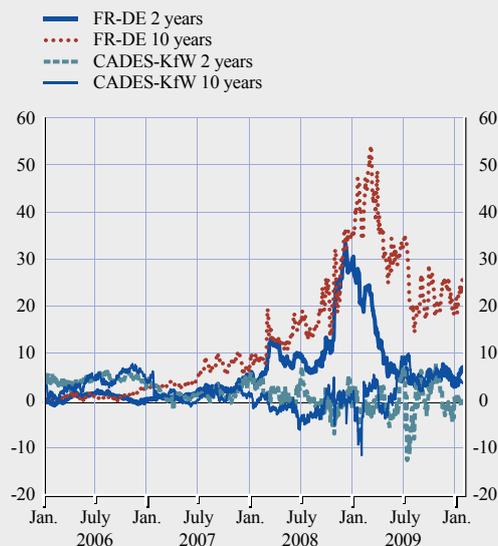
In order to examine the role of liquidity premia further, the yields of specific bonds with similar credit quality were compared. Specifically, government-guaranteed agency bonds can help to disentangle credit and liquidity premia in the sovereign market. Since the credit risk component of agency bond yields is assumed to be the same as that of bonds issued directly by the guaranteeing government, any differences between agency and government bond yields should reflect liquidity effects.

Focusing on the two largest euro area countries, this analysis uses bonds issued by the *German Kreditanstalt für Wiederaufbau* (KfW) and the French *Caisse d'Amortissement de la Dette Sociale* (CADES). While the objectives and core activities of these institutions differ, both have an explicit and full debt guarantee from the respective governments. Furthermore, the KfW and CADES are the largest euro area agencies in terms of issuance volume and, unlike other agencies, the number of outstanding bonds is sufficient to estimate reliable yield curves.

Chart 11 presents the spreads between the French and German two-year and the ten-year sovereign and agency bonds. The results are qualitatively the same for other maturities. It is striking that although a pronounced peak was observed for the French-German sovereign spread in the first half of 2009, the agency spread between CADES and KfW remained remarkably stable with an absolute divergence of less than 10 basis points, suggesting that there were no significant changes in the relative perceived credit quality of the sovereign issuers. However, the two-year and the ten-year sovereign spreads, which peaked at 33 and 54 basis points respectively on 9 December 2008 and 9 March 2009, call for liquidity factors favouring the German bond market in relative terms, particularly at longer maturity.

Chart 11 Zero coupon sovereign and agency yield spreads

(five-day moving averages; basis points)



Sources: Bloomberg and ECB calculations.
Note: Spreads between French and German sovereign bonds (red line) and French and German agency bonds (blue line) with ten-year maturity.

This implies not only that there is a certain degree of market specialisation in the euro area, but also that the associated liquidity risks have changed over time, increasing during the turmoil and decreasing after the Governing Council's decision of 5 March 2009 to continue the fixed rate tender procedure with full allotment for the refinancing operations for as long as necessary.¹⁰

Useful is also the assessment of developments in the covered bond market, a class of bonds generally issued by banks and backed by assets, typically mortgages or public sector loans.

⁹ For further details, see "Box 4 – New evidence on credit and liquidity premia in selected euro area sovereign yields", *Monthly Bulletin*, ECB, September 2009.

¹⁰ There need not be a one-to-one relationship between market liquidity and segmentation. For example, during the financial turmoil, the sovereign liquidity premium increased in highly integrated markets such as in the United States. By contrast, other features of this relationship are related to the presence of idiosyncratic elements such as, in the euro area, different fiscal regimes, market conventions and other national financial characteristics.

In the past, movements in the yields on covered bonds have shown a high degree of synchronisation across countries. With the financial turmoil, the dispersion in yield spread levels increased significantly (see Chart 12).

After peaking in April 2009, following the announcement of the ECB's programme for purchasing covered bonds on 7 May 2009, yield spreads declined sharply and issuance volumes rose. However, the dispersion of the spreads across countries started to decline only with the implementation of the announced measures in July 2009, and, at the end of November, they stabilised at the level reached at the beginning of the year. The developments in the European covered bond market are reviewed in detail in Special Feature B.

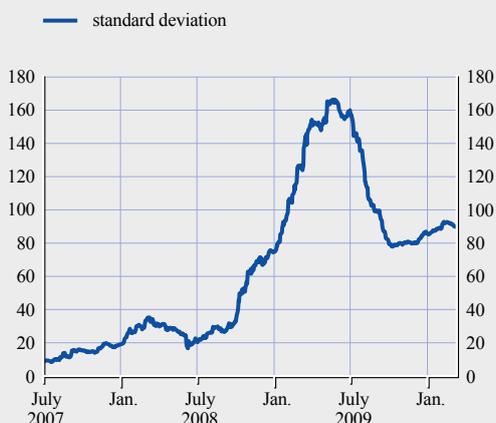
Overall, comparisons of bond yield differentials must be interpreted with care. Spread divergences may be attributable to differences in perceived credit risks, and as such they reflect the proper functioning of market discipline and not a lack of integration. Most integration measures proposed for bond markets are based on the

understanding that, as integration progresses, bond yields should increasingly be driven by common, rather than local, factors. A typical measure of the cross-border integration of bond markets is based on a regression of changes in government bond yields of individual countries against changes in yields of a benchmark. As already mentioned in previous reports, the estimated slope coefficients varied substantially up to 1998, but converged towards 1, the value that denotes perfect integration, thereafter. Greek government bond yields converged after 2001, when Greece joined the euro area (see Chart C5 in the Statistical Annex). In 2008, however, the evolution of this measure of convergence clearly signalled possible problems in the integration of the government bond market.

Since differences in bond yields across countries may also reflect differences in credit risk, Chart 13 (see also Chart C7 in the Statistical Annex) presents the estimated constant and slope coefficients of a similar model where sovereign risks are controlled with country rating dummies. Again, in a situation of perfect integration, these coefficients should converge

Chart 12 Country dispersion of the spread of covered bonds vis-à-vis German five-year government bonds

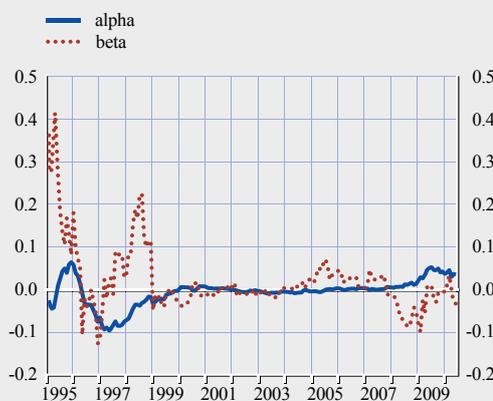
(daily data; basis points)



Source: Datastream and ECB calculations.

Chart 13 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 German ten-year government bond.

towards 1 (0 in Chart 13, since the slope is normalised by subtracting 1), assuming that no variables other than sovereign risk are affecting the change in yield.¹¹

This indicator shows that, even after accounting for differences in sovereign risk, there are signs of divergence from the theoretical benchmark value. Under the hypothesis that the credit assessment of the markets is the same as that of the rating agencies, this evidence suggests that spreads in the government bond market remain sizeable even after controlling for country credit risk, and that liquidity risk premia remain non-negligible, partly reflecting the lack of non-Bund euro-denominated bond futures markets. However, it should be pointed out that both coefficients had started to converge towards 0 by the end of 2009.

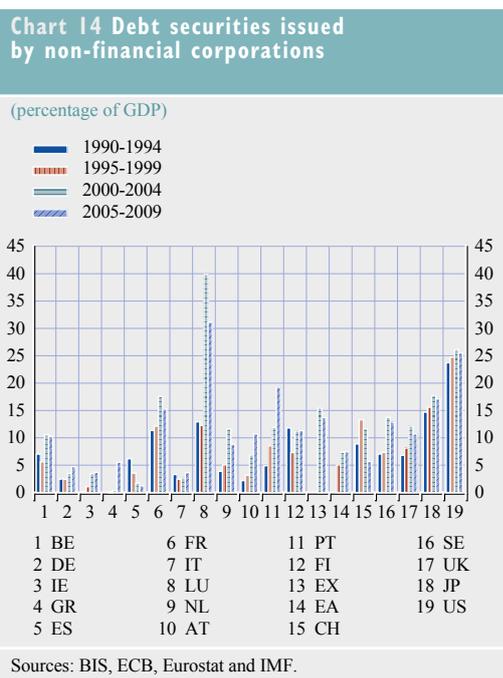
Turning to the euro area corporate bond market, Chart 14 shows the development of debt securities issued by the private sector over the last two decades. Similarly, the indicator of capital market size takes five-year averages to smooth out short-run fluctuations. This indicator shows that there has been stagnation,

and sometimes even a decline, in bond issuance in most euro area and benchmark countries in the last few years, partly reflecting the impact of the financial turmoil. There is considerable heterogeneity in bond issuance across the euro area. At the same time, it must be borne in mind that companies may well take advantage of foreign subsidiaries when issuing bonds in order to benefit from lower transaction costs and/or more favourable fiscal regimes. Despite the impetus of the introduction of the euro, the overall level of issuance in the euro area is lower than in most benchmark countries. Recently, the record issuance volume observed for non-financial corporations in 2009 could signal a return to this form of financing.

The extent to which integration has progressed in this market can be assessed by measuring the relative importance of country components versus other factors in explaining risk-adjusted yields. As integration advances, the proportion of the total yield spread variance explained by country effects should decrease.

To help identify the relevant factors, the within dispersion in CDS premia of two groups of firms producing relatively homogenous products, the leading telecommunications firms and the largest commercial banks in each country, were used. If corporate bond markets were integrated, the dispersion in CDS premia would be small (see Chart 15).

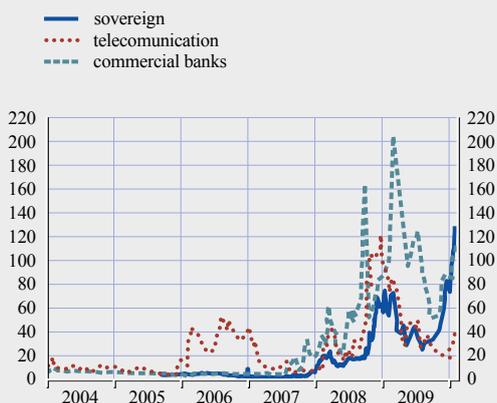
The country dispersion of CDS spreads of both the commercial banks and telecommunication firms rose sharply in 2008, anticipating the developments in sovereign CDS spreads. Specifically, the country dispersion of CDS spreads of the commercial banks surged with the bankruptcy of Lehman Brothers in September 2008, but then plummeted immediately, before subsequently rising again as a result of protracted market and funding illiquidity. The dispersion declined rapidly in the wake of, first, the ECB Governing Council's decision of 5 March 2009 to continue the fixed



¹¹ See the Statistical Annex for details.

Chart 15 Dispersion in five-year CDS premia among leading telecommunication firms and commercial banks across euro area countries

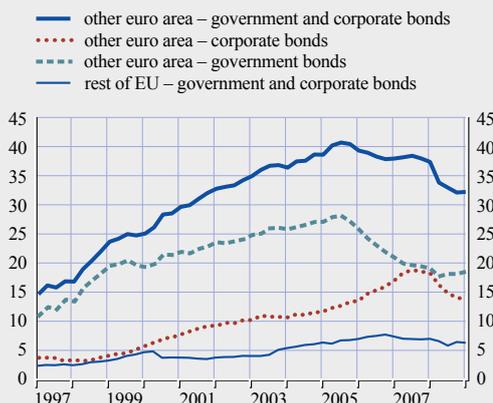
(daily data; basis points)



Source: Thomson Reuters Financial Datastream.
 Notes: For detailed information on the construction of the sectoral indices, see Chart C8 in the Statistical Annex.

Chart 16 The share of MFI cross-border holdings of debt securities issued by euro area and EU non-MFIs: outstanding amounts, by residency of the issuer

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



Source: ECB.
 Notes: This indicator shows the geographical counterparty diversification of securities held by euro area MFIs vis-à-vis the non-MFI sector over the total amount outstanding. Debt securities issued by domestic non-MFIs and non-MFIs in the rest of the world are not displayed in the chart.

rate tender procedure with full allotment and, then, the implementation of the covered bond purchase programme in July 2009.

Conversely, the country dispersion of CDS spreads in the telecommunication sector already started to decline in January 2009 and followed the pattern of sovereign CDSs during the year. At the end of 2009, the dispersion in the commercial bank CDS market remained above that in the sovereign CDS market, while that in the telecommunication industry was lower, suggesting that the market for commercial bank bonds remains heavily subject to perceived credit risk.

The quantity-based indicators also point to decreasing integration in the corporate bond market in 2008 and 2009. Cross-border holdings of debt securities by MFIs decreased from about 40% in 2006 to just above 30% in 2009 (see Chart 16 and Chart C9 in the Statistical Annex).

The decline in the proportion of cross-border euro area holdings of government bonds in 2006 and 2007 reflects a substitution between

government and corporate bonds in the portfolios of MFIs, which can be explained by MFIs' diversification of their investments in search of higher yields in the fixed income market. The decline of cross-border holdings in 2008 and 2009, by contrast, results from the MFIs' holdings of debt securities issued by non-financial corporations declining sharply.

The integration of bond and equity markets relies greatly on the degree of integration of the underlying infrastructure, in particular that of the securities settlement systems (SSSs) and central counterparties (CCPs).¹²

There were 22 legal entities operating a central securities depository (CSD) in the euro area in 2009. The increase by one from the previous year is explained by the enlargement

¹² 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 50.2% in 2006, and stood at 45.3% in 2008 (see Chart C13 in the Statistical Annex).

of the euro area to also include Slovakia and its local CSD.

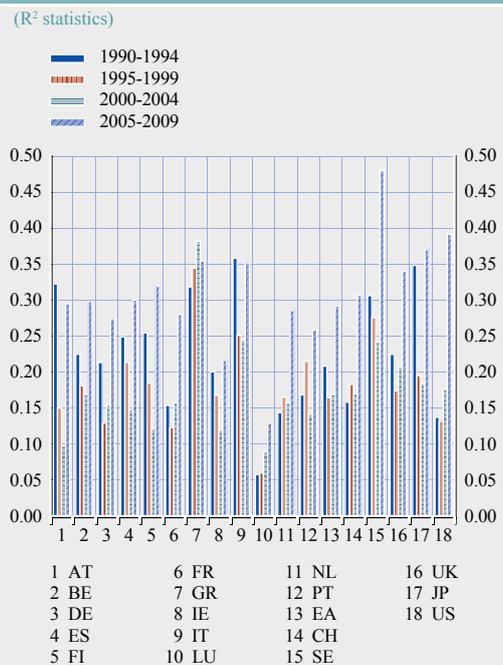
Integration between, and consolidation among, SSSs can take various forms. Within the Euroclear group, the Belgian, Dutch and French CSDs have operated on one common platform, known as ESES (Euroclear Settlement for Euronext-zone Securities), since January 2009. Progress was also made in 2009 in the implementation of the “Link Up Markets” initiative. In terms of technically integrating settlement, the most significant initiative is the Eurosystem’s pan-European securities settlement platform T2S.

EQUITY MARKETS

The very large fluctuation of equity prices in recent times (with sustained growth prior to the financial turmoil followed by a sharp decline until March 2009 and a subsequent recovery) does not seem to have had an appreciable impact on the degree of cross-border integration of European equity markets.

Chart 17 displays the synchronicity of stock returns across euro area and reference countries. This indicator of development assesses the information capacity of stock markets that is based on the synchronicity of companies’ stock returns within a market. If firms’ stock prices are driven mainly by market-wide factors and not by firm-specific news, they tend to move together, indicating that little valuable firm-specific information is revealed to, or used by, investors. The measure is obtained from the explained variance of stock returns when regressing them on a number of market-wide and global factors.¹³ Higher bars therefore represent a higher synchronicity of stock returns, which in turn indicates a lower information content of individual stock prices. The extent to which equity markets are information efficient varies across the euro area and is generally comparable to the benchmark countries. While stock markets had become informationally more efficient in the 1990s, most equity markets have become somewhat

Chart 17 Pricing of firm specific-information in the stock market



Sources: Datastream and ECB calculations.

less efficient over the past few years in incorporating firm-specific news in prices. Furthermore, the increase in the synchronicity of stock returns observed in the last period is due mainly to the 2008 results, where the general downward movements of stock markets clearly increased the amount of variation in returns that can be explained by market-wide common shocks.

It is harder to assess the degree of integration of equity markets than that of money and government bond markets as equity returns are not directly comparable. One simple integration indicator compares the country and sectoral dispersions in monthly stock returns over time. Dispersions are indicative of the diversification opportunities: the higher the dispersion, the greater the benefits in terms of risk reduction from a proper diversification strategy. Chart 18 shows that,

¹³ For details, see “Special Feature A – Financial development: concepts and measures”, *Financial Integration in Europe*, ECB, April 2008.

Chart 18 Filtered country and sector dispersions in euro area equity returns

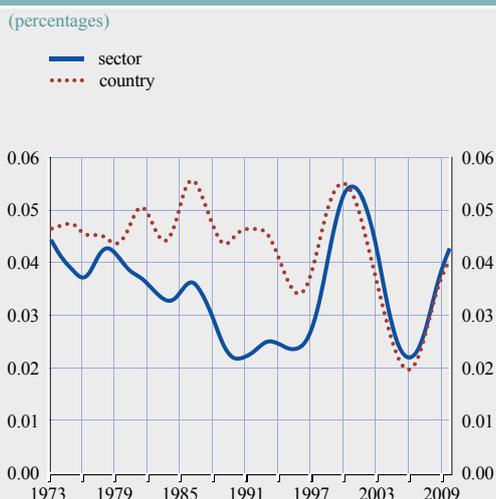
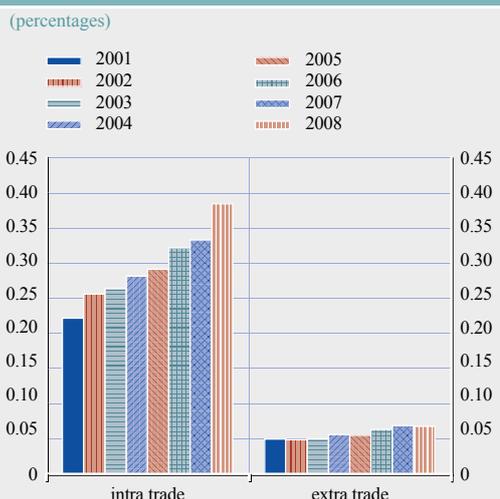


Chart 19 The degree of cross-border holdings of equity issued by euro area residents



since 2001, the benefits of diversification through sector-based equity investment strategies have been at least of the same size as those obtained through country-based strategies. These results are consistent with a paradigm change in the asset management industry, involving a progressive move from a country-based to a sector-based equity allocation strategy, which should ultimately lead to a reduction in home bias.

A complementary, direct strategy to quantify the impact of integration in equity markets consists in looking at the cross-country asset allocations in investors' portfolios. In a truly integrated market, investors should not, all other things being equal, prefer national over foreign equities.

Quantity-based measures indicate a rising degree of integration in equity markets. As shown in Chart 19, euro area residents constantly increased their holdings of equity issued in other euro area countries (expressed as a share of their total portfolio of shares issued in their own country and elsewhere in the euro area) between 2001 and 2007. Moreover, this share increased very substantially further in 2008. On the other hand, since 2001, the share of euro

area equity assets held outside the euro area has remained at a far lower level and has increased only marginally.

The moves out of domestic equity and into equity issued elsewhere in the euro area displayed in the previous indicators were also due to the contribution of institutional investors. Chart 20 shows that the percentage of investment funds' total holdings of all shares

Chart 20 Investment funds' holdings of equity issued in other euro area countries and the rest of the world



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 actually increased from 17% to around 25%. The recent financial turmoil affected the allocation of euro area investment only slightly.

Regarding market infrastructures, the euro area securities settlement infrastructure for equities is even less integrated than that for bonds, also due to qualitative barriers, such as differences in settlement cycles or the handling of corporate events and taxation, which continue to hinder progress in the integration of these infrastructures.

In 2009, the clearing industry has been subject to considerable change following the implementation of the Code of Conduct for Clearing and Settlement. In particular, competition between CCPs had considerably increased with the rise of “competitive clearing”, i.e. exchanges being served by two CCPs. Moreover, there has been a large number of requests for establishing links between CCPs and other market infrastructures which has led to a further increase in effective and potential competition between CCPs. As a result, there has been a sharp decline in clearing fees.

BANKING MARKETS

Euro area banking activities were profoundly affected by the crisis, primarily as a result of increased lending and funding risks, but also as a consequence of government support and regulatory initiatives being confined within national borders. A general setback in banks’ and investors’ risk appetite was also observed.

STRUCTURAL INDICATORS

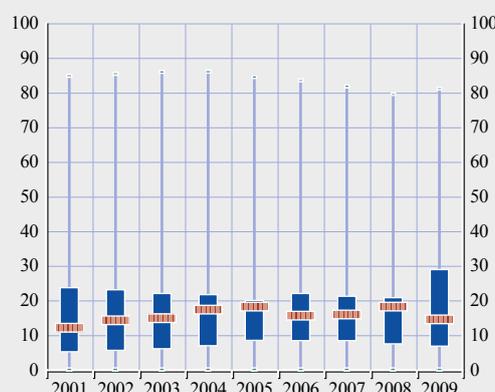
At a structural level, this setback was reflected in significant changes in the euro area banking landscape, where a number of group mergers and “splits” as well as functional reorganisation occurred. Simple measures of cross-border activity – the degree of establishment and

activity of foreign branches and subsidiaries over time – reveal a certain tendency away from integration. The decline in the share of assets held by cross-border branches and subsidiaries of banking groups within a given country in 2009 – a proxy for the degree of cross-border integration of that country’s banking sector – stood in contrast to the positive trend observed in previous years. Although the median share across countries had risen from 2006 to 2008, suggesting an increased relevance of foreign-controlled institutions tapping non-domestic markets up to that point in time, figures for 2009 show a light reversal of this trend (see Chart 21, and Charts C17 and C18 in the Statistical Annex).

Indeed, the distribution across countries of this indicator reveals that a general increase in the share of foreign-located assets was observed across the board until 2008, even though the movement at the upper end of the distribution (banking systems heavily geared to a foreign presence) appears to have been mainly in the opposite direction. By and large, banking systems oriented more towards an international business strategy appear to have taken a different course in 2009 as a consequence of the crisis.

Chart 21 Dispersion of the total assets of euro area bank branches and subsidiaries across euro area countries

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

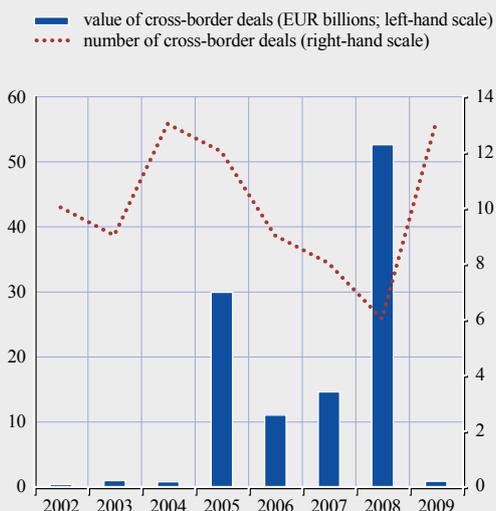


Source: ECB.

Notes: The lower and upper markers show the minimum and maximum shares across euro area countries. The bottom and top of the box show the first and third quartiles, and the red line the median.

Chart 22 Euro area cross-border bank M&A activity

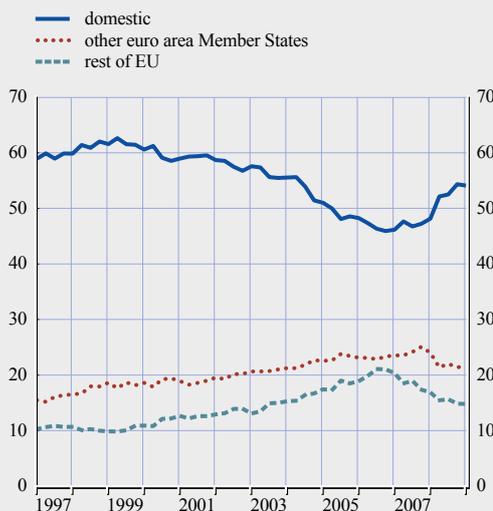
(value of intra-euro area cross-border M&As; absolute numbers)



Sources: Bureau van Dijk and ECB calculations.

Chart 23 Interbank (MFI) loans: outstanding amounts, broken down by residency of the issuer

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



Source: ECB.

Similarly, bank cross-border merger and acquisitions (M&As) experienced a marked slowdown in 2009, even though the number of transactions in the period was significant (see Chart 22).

Whereas the value of euro area cross-border M&As increased substantially in the first half of 2008, as a consequence of the takeover of one large institution, the figures for the subsequent 12 months were characterised by the unwinding of very large internationally active institutions whose business models were most affected by the events that followed the collapse of Lehman Brothers.

ACTIVITY-BASED INDICATORS

Retail activities were already fragmented substantially prior to the crisis, unlike wholesale and capital market activities that were more closely integrated across borders, so that the impact of the crisis on integration was more evident in the case of the latter activities.

Indicators of banking activity provide some evidence. The share of cross-border interbank

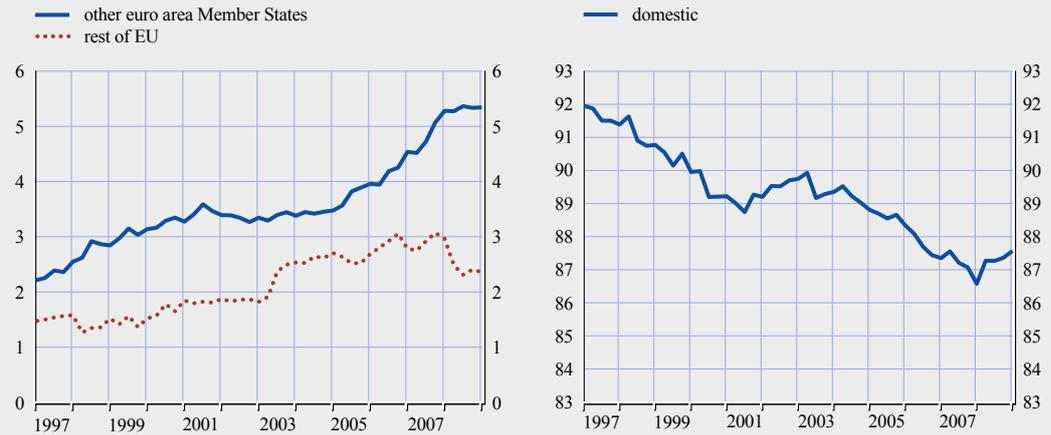
lending in total interbank lending revealed a substantial level of integration: far more than 35% of all interbank loans were extended across borders (see Chart 23).

The decline in the share of domestic activity in the total observed since the beginning of this decade was reversed in 2008, as reported in last year's report. Specifically, activity across borders (both within and outside the euro area) declined, marking a departure from the positive trend that had been observed previously. The setback in interbank activity across the euro area and the EU, however, seems to have slowed down somewhat in 2009.

Retail cross-border lending has traditionally been characterised by far lower levels of activity: less than 6% of all loans to non-credit institutions were extended across borders to euro area countries and less than half of that percentage across borders to EU countries (see Chart 24). Despite these modest levels, cross-border lending had been rising slowly over years, a trend that may – based on the most recent developments – have been interrupted by the onset of the crisis.

Chart 24 MFI loans to non-MFIs: outstanding amounts, broken down by residency of the counterparty

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



Source: ECB.

Correspondingly, the share of domestic lending activity in total lending seems to have stabilised, after the decline that had been observed in the last decade.

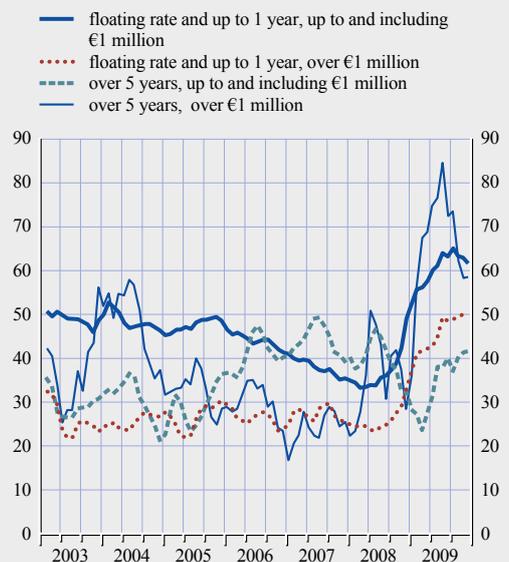
Differences in bank interest rates can be attributed to several factors, including different conditions in national economies (credit and interest rate risk, firm size, industrial structure and the degree of capital market development),

PRICE-BASED INDICATORS

The negative integration-related impact of the crisis on banking activity is most evident in price measures, where the cross-country dispersion in interest rates increased sharply across all maturities and loan sizes (see Chart 25). Whereas cross-country dispersion of euro area bank interest rates on loans to non-financial corporations had consistently remained at relatively high levels since collection of these statistics started in 2003, these measures have increased substantially since the last report. For cross-border loans of over five years' maturity and larger than €1 million, the dispersion of rates across countries more than doubled in the course of 2009, contributing to the much wider dispersion across countries in the perception of risk in the segment. By contrast, the dispersion of interest rates on loans to households continued to be stable in the period under review and remained substantial in the case of loans for consumption purposes (see Chart C21 in the Statistical Annex).

Chart 25 Cross-country standard deviation of MFI interest rates on loans to non-financial corporations

(basis points)



Source: ECB.

institutional factors (taxation, regulation, supervision and consumer protection) and financial structures (degree of bank/capital market financing and competitiveness).¹⁴ Therefore, a greater dispersion of interest rates across countries also reflects the market's perceptions of the varied degree to which national markets would respond to the shock inflicted by the crisis.

In addition to the simple spread across countries, the coefficient of convergence of the speed with which different rates converge to a specific benchmark – also called beta convergence – provides an analytical measure of the convergence of interest rates across euro area banking systems (see Chart 26).¹⁵ Whereas the evolution over time of the estimated slope coefficients is almost always negative – indicating convergence of the observed rate to the benchmark rate – the speed of this convergence decreased considerably after August 2007, but seems to have turned around again later

in 2009. This evidence mitigates, to some extent, the message conveyed by the rise in the interest rate spreads.

OTHER INDICATORS

The low level of retail banking integration depicted by quantitative indicators is also associated with a still relatively high level of fragmentation in the retail payments market. This shortcoming is being addressed in the context of the Single Euro Payments Area (SEPA) project¹⁶ Measuring the progress of migration to SEPA at the national level, as documented by the national SEPA credit transfer (SCT) indicators (see Chart 27),¹⁷ there are significant differences across countries.

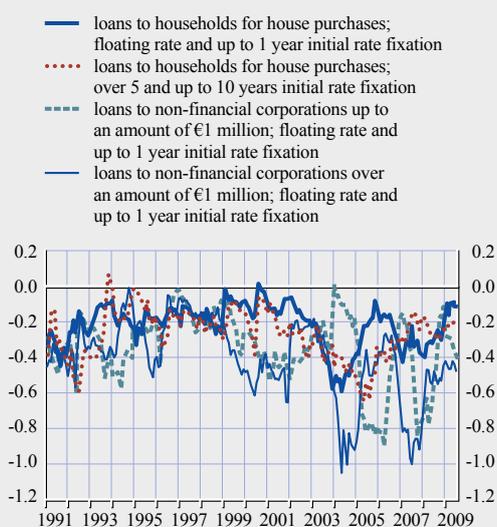
14 See *Differences in MFI interest rates across euro area countries*, ECB, September 2006.

15 See the Statistical Annex for technical details.

16 See the ECB's website at www.ecb.europa.eu.

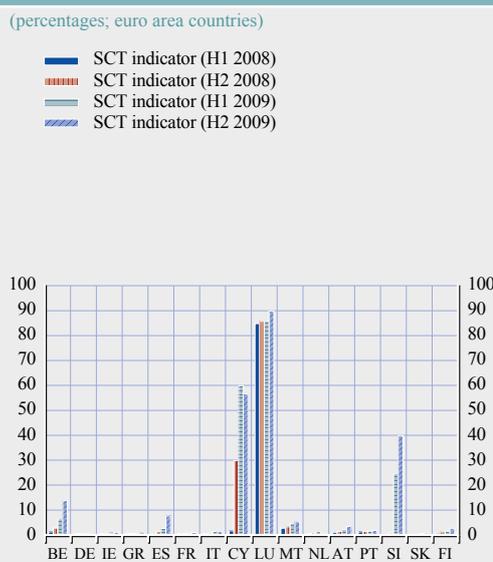
17 The results are published and updated regularly on the ECB's website at www.ecb.europa.eu.

Chart 26 Beta convergence for selected banking retail interest rates



Source: ECB.
Note: See the Statistical Annex for a precise definition of retail interest rates.

Chart 27 Credit transfer transactions processed in SEPA format (euro area countries)



Source: ECB.

These differences in the usage of this pan-European payment instrument could be attributed in part to different regulatory set ups,¹⁸ as well as to diverse time schedules for the migration of important users such as public authorities and large enterprises.¹⁹ At the European level, the euro area SCT indicator shows that the use of the SCT has been rising steadily since the launch of SEPA on 28 January 2008, and has accelerated in 2009 (see Chart C27 in the Statistical Annex). Overall, the upward trend in all countries, as well as at the European level as a whole, demonstrates the ongoing progress towards market integration.

The level of integration is still low, as reflected in the high number of national retail payment infrastructures. On the other hand, the concentration ratio of the largest five retail payment infrastructures in the euro area is rather high; in 2008, these five largest infrastructures processed 86% of the total market volume (Chart C26 in the Statistical Annex).

18 In Luxembourg, for example, use of the IBAN and BIC, the key elements of an SCT, is mandatory also for domestic payments.

19 According to European Commission's 2nd Survey on Public Administrations' Preparedness and Migration to SEPA, the share of SCTs in all credit transfers initiated by public authorities in March 2009 was 100% in Luxembourg, 60% in Slovenia and 18% in Belgium. The report is available on the Commission's website at <http://ec.europa.eu>



CHAPTER II

SPECIAL FEATURES

A. BANKING INTEGRATION AND SUPERVISION IN THE EU

The integration of European financial markets in recent years has exposed, to an increasing extent, the challenges stemming from the fragmented nature of the EU's supervisory architecture. Two links are relevant in this context. On the one hand, market integration requires a consistent area-wide regulatory and supervisory framework in order to maintain a level playing field and to promote healthy cross-border competition. On the other hand, consistent regulation and supervision, in turn, facilitates further integration and enhances the efficiency and competitiveness of the financial sector in the EU.

Against this background, this Special Feature comprises two related sections. The first reviews the recent trends in cross-border banking, including the effect that the financial crisis has had on them. All in all, while a number of measures seem to point to an increasing degree of integration in the last decade, there is also contrasting evidence and the overall picture is mixed. The second section discusses how the new EU supervisory architecture, besides responding to the challenges of financial stability, is expected to also improve the level playing field for cross-border banks and thereby foster integration in the EU banking markets further.

I INTRODUCTION

The banking sector plays a central role in the functioning of financial markets in Europe; bank loans account for almost half of the EU capital markets. Banks are particularly important for the provision of financing for small and medium-sized enterprises, a sector that is pivotal for growth and job opportunities in the EU.¹

Cross-border banking activity (a major driver of banking integration) is largely concentrated in large-sized banking groups. Cross-border banking groups increase competition in the

EU banking markets and channel innovation in financial products and services across borders. As a consequence, they also promote the use of the most efficient banking practices in the EU. Developments in cross-border banking are thus of great importance for financial integration and development in Europe.

This Special Feature presents, in its first section, a summary of the evidence on cross-border banking integration on the basis of a number of indicators. As already noted in earlier issues of this report, wholesale and securities-related activities continue being more integrated than retail banking. The financial crisis has slowed or stopped the integration process in a number of market segments. But there are reasons to believe that the halt may be temporary, and that the earlier trends may resume, perhaps soon, since the fundamental drivers of banking integration (efficiency enhancements such as the concentration of functions at the group level, the transfer of technology and managerial skills, diversification and advances in the harmonisation and integration of retail payment legislation and infrastructures) remain in place in the EU. The share of banking assets held by foreign establishments in the EU is expected to continue its increase after a decline in 2008. Subsidiaries remain the dominating form of foreign establishment in the EU and in particular in the Member States that have joined the EU in 2004 and 2007. Cross-border merger and acquisition (M&A) activity has subdued somewhat during the financial crisis but is also expected to pick up again once the economic conditions will further improve.

¹ See, for example, *Statistics Pocket Book*, ECB, January 2010. Capital markets are defined here as the sum total of bank credit, outstanding debt securities and stock market capitalisation. In the case of non-financial corporations, bank loans accounted for, on average, 63% of their total financing between 2004 and the second quarter of 2007. Four-fifths of all small and medium-sized enterprises use bank loans to finance their operations. See "The external financing of households and non-financial corporations", *Monthly Bulletin*, ECB, April 2009, and "Special Feature C – Financing of small and medium-sized enterprises and young innovative companies in Europe", *Financial Integration Report*, ECB, April 2009.

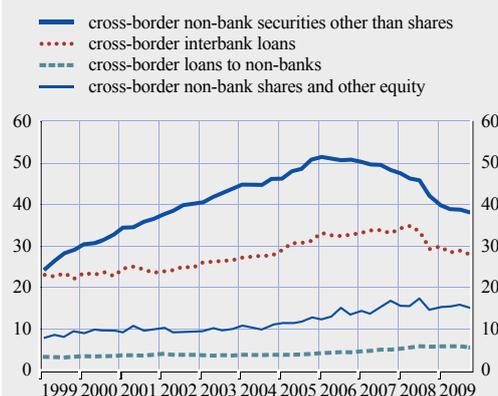
The second and final section of the Special Feature outlines the recent proposals for changes to the EU supervisory framework. As cross-border activities have increased, the adequacy of the existing regulatory and supervisory set-up has been questioned to an increasing degree. Efforts to harmonise the EU regulatory and supervisory framework in the past years have been based on an evolutionary approach of intensifying cooperation and coordination between national supervisors. Although much had been achieved in this way, it has become increasingly clear over the years that cross-border banking may be facilitated by further convergence and consistency in implementation of EU legislation.

The financial crisis has given new impetus to the debate on financial regulation and supervision in Europe and resulted in a fundamental review. Although the proposals for the new EU supervisory architecture are aimed, first and foremost, at improving financial stability in the Single Market, they also have an additional potential for fostering financial integration further, in particular in the field of cross-border banking. The creation of the European System of Financial Supervisors (ESFS) is expected to reduce barriers to financial integration through the development of a single EU rulebook, and by ensuring that EU law is transposed uniformly in national law and applied consistently in day-to-day supervision. In addition, the European Systemic Risk Board (ESRB) is expected to enhance systemic stability in the Single Market, and thus to promote the safe and smooth functioning of the financial system, which can, in turn, increase the potential for further financial integration in Europe.

2 DEVELOPMENTS IN CROSS-BORDER BANKING

This section presents the recent developments in cross-border provision of financial services, foreign establishments and cross-border mergers and acquisitions (M&As). It also presents evidence from an alternative measure for assessing banking integration, based on the convergence of bank profitability.

Chart 28 Cross-border provision of financial services in the euro area – assets

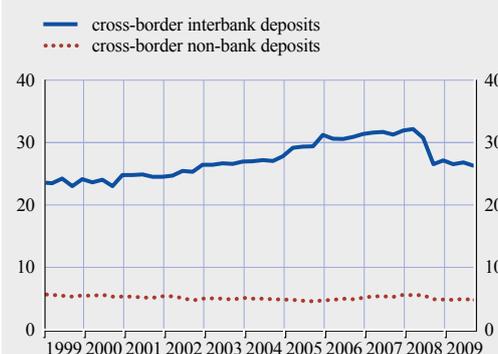


Source: ECB.

Note: Cross-border activity is expressed as a percentage of the total provision of financial services in the euro area.

Charts 28 and 29 depict the development of the cross-border provision of financial services in the euro area since the start of Monetary Union. The charts show that financial integration has advanced well over time in the wholesale and securities activities, while that in the retail banking market has lagged behind. The financial crisis has reduced the cross-border provision of financial services and, in particular, wholesale and securities-related activities. Banks have clearly been relying more on domestic than on foreign counterparties in their transactions.

Chart 29 Cross-border provision of financial services in the euro area – liabilities



Source: ECB.

Note: Cross-border activity is expressed as a percentage of the total provision of financial services in the euro area.

By contrast, retail banking integration, originally remaining at a lower level, seems to have been affected to a lesser extent.

Academic literature and contributions by the industry and authorities broadly confirm the conclusion that retail banking markets remain fragmented. Commonly stated reasons include the importance of proximity and a relationship to the customer and language, as well as legal, regulatory and information-related barriers to entry.² The limited impact of the financial crisis on retail banking also supports the finding that this market is driven by structural rather than cyclical developments. Box 1 presents an

alternative way to investigate integration in banking markets that is based on the convergence of bank profitability. The results corroborate the view that some convergence is already taking place in these markets as well.

- ² See, for example, A.N. Berger, R. DeYoung and G. Udell, "Efficiency barriers to the consolidation of European financial services industry", *European Financial Management*, Vol. 7, No 1, March 2001, pp. 117-130. For a comprehensive overview of the literature, see, for example, J.P. Goddard, P. Molyneyx, J.O.S. Wilson and M. Tavakoli, "European banking: An overview", *Journal of Banking and Finance*, Vol. 31, No 7, July 2007, pp. 1911-1935. For industry contributions, see, for example, S. Schäfer, "EU retail banking: measuring integration", Deutsche Bank Research, April 2009.

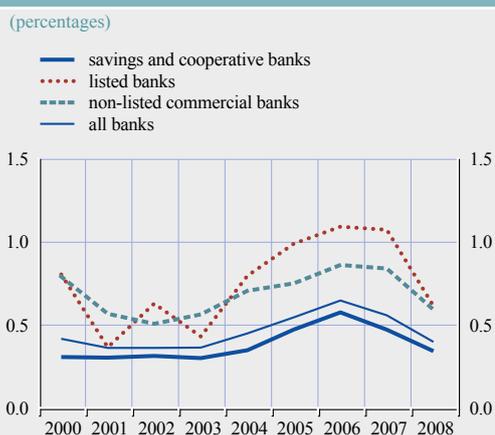
Box 1

THE DEVELOPMENT OF BANK PROFITABILITY IN THE EURO AREA

Academic literature has debated at length whether financial integration might have an impact on the development of profitability among banks.¹ As financial integration affects the degree of competition across national markets and intermediaries, it should be expected to generate a convergence of profitability margins among different countries. In the euro area, where markets have become more contestable over time² and where there is an active market for corporate control through takeovers, acquisitions or mergers of underperforming banks, profitability could be considered a meaningful measure of banking integration.

Chart A displays the average profitability, expressed in terms of the return on assets (ROA), across a sample of euro area banks, broken down by category, namely listed banks, non-listed commercial banks, and savings and cooperative banks (the use of other measures of profitability, such as the return on equity, does not materially change the conclusions, as

Chart A Return on assets of a sample of euro area banks

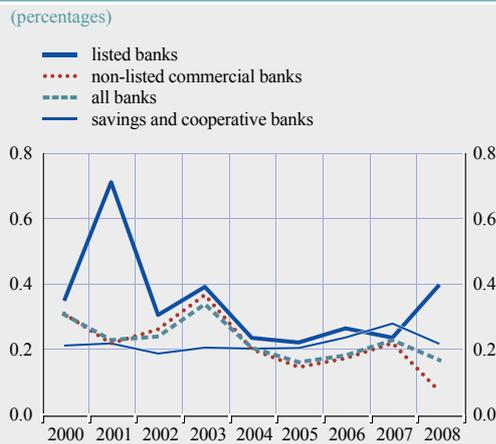


Sources: Amadeus, Bureau Van Dijk and ECB calculations.

¹ See for instance F. de Guevara, J. Maudos and F. Perez, "Integration and competition in the European financial markets", *Journal of International Money and Finance*, No 26, 2007, pp. 26-45.

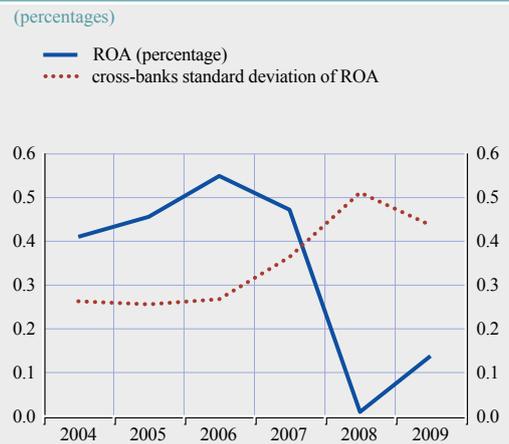
² A perfect contestable market is one in which entry and exit are at no cost. In such a market, competitive pressures, either as a result of the threat of entry or on account of the presence of actual competitors, can prevent monopoly behaviour.

Chart B Cross-country standard deviation of the return on assets (ROA) in the euro area



Sources: Amadeus, Bureau Van Dijk and ECB calculations.

Chart C Return on assets of large banks – cross-country standard deviation



Sources: Individual institutions' financial reports and ECB calculations.

explained below).³ The chart shows that there is substantial difference in profitability levels across bank types; listed banks take the top rank, while savings and cooperative banks are at the lowest level in terms of average ROA. No trend towards convergence among these groups can be discerned. In particular, the positive profitability gap between listed banks and the rest of the population has increased in recent years, contrary to the expectation that listed banks face a more aggressive environment in terms of market entry and takeover threats. However, listed banks are exposed to intense pressure from shareholders to generate higher returns and are generally more investment-oriented and thus structurally more profitable.

Chart B shows the cross-country dispersion *within* types of banks. In the case of listed banks, the dispersion across countries has decreased since 2001 but due to the global financial crisis, it has increased in 2008. For non-listed commercial banks, the convergence process seems to have started two years later, and has not yet shown signs of stabilisation. Differences in bank profitability have remained almost unchanged for savings and cooperative banks over the same period. Moreover, there are signs of an increased dispersion, which were accentuated in the last year of the analysis, most likely related to the impact of the financial turmoil.

This increase in the dispersion of profitability is confirmed using a different sample of banking groups, normally analysed for the cyclical monitoring in the ECB's Financial Stability Review, from which quarterly data are also collected (see Chart C).

3 Our sample consists of 3,047 banks, 116 of which are listed banks, and covers the period from 2000 to 2008. Data was collected for banks in Austria (5% of the total sample), Belgium (2%), France (8%), Germany (56%), Italy (22%), Luxembourg (2%), the Netherlands (1%) and Spain (4%). Roughly 21% of the sample consists of unlisted commercial banks, while 78% represents cooperative and savings banks. From a country perspective, two-thirds of all cooperative and savings banks are located in Germany, and one-fifth in Italy.

In order to pin down convergence towards a common profitability level as accurately as possible, the following equation was estimated⁴:

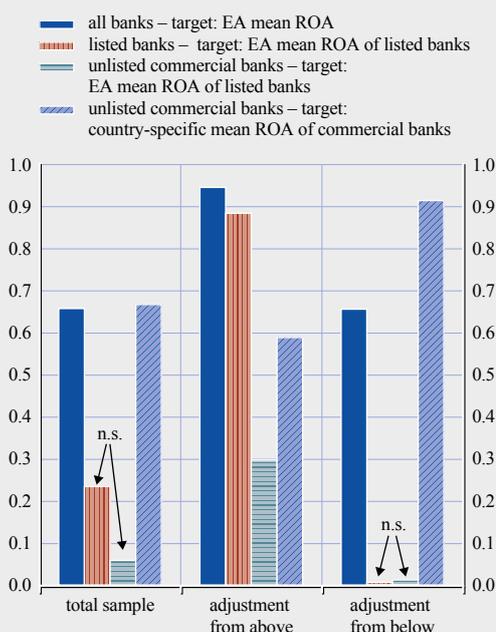
$$\Delta ROA_{it} = \alpha + \lambda \Delta ROA^*_t - \beta \Delta ROA_{it-1} + \varepsilon_{it} \quad (1)^5$$

where ROA_{it} is the return on assets of bank i at time t and ROA^*_t is the common target profitability towards which all banks should converge if the banking market is integrated. Empirically, this is calculated as the yearly mean rate of profitability and, as described in column 1 of the table below, for all banks in the sample, for different types of banks and for individual countries. Profitability is measured with the ROA, as is often done in empirical analysis.⁶

The results of the estimation are depicted in Chart D. First, the convergence of the whole sample of banks towards a common target profitability (ROA^*_t) is tested; then it is checked whether the speed of convergence differs if banks report profits above or below the benchmark. Starting from the first panel on the left, the estimated speed of convergence for the whole sample (blue column) is 0.66, which is a relatively high value when the fact is taken into consideration that the business models of the banks in the sample differ quite significantly. The second and the third panels report additional information on the dynamics of the convergence process: the former may be interpreted as expressing the impact of competitive forces, while the second indicates that on the potential threat of takeovers. As expected, the speed of convergence is higher for banks with a profitability in excess of the ROA^*_t since competition for extraordinary rents is relatively higher compared with potential threats due to forms of corporate control.⁷

Turning to the different bank categories (listed (red bars) versus unlisted commercial banks (green and light blue bars)), it appears that,

Chart D Speed of convergence of the ROA for a sample of euro area banks¹⁾



Source: ECB calculations.

Note: n.s. indicates that the coefficients are not statistically significant.

1) When the model is re-estimated using the ROE as measure of profitability, the results are confirmed. In the case of unlisted commercial banks, the convergence of profitability is higher and significant (0.33) when the long-run profitability is based on the mean ROE of listed companies, and the potential threat of takeovers seems stronger (the coefficient is 0.43 and significant).

4 As proposed by R. Gropp and A.K. Kashyap, “A new metric for banking integration in Europe”, NBER Working Paper Series, No 14735, National Bureau of Economic Research, 2009.

5 This equation is derived by taking the lags of both sides of the equation and taking the difference of the following equation $\Delta ROA_{it} = \alpha + \beta (ROA^*_t - ROA_{it-1}) + u_i + \varepsilon_{it}$, (see R. Gropp and A.K. Kashyap, op. cit., 2009). In principle, the coefficient β on the lagged dependent variable in equation (1) should be equal to $(1-\lambda)$.

6 The measure of ROA is used as provided by Bankscope, which is calculated as the ratio of net interest revenue and earnings assets and is consistent with the definition used in *Financial Stability Review*, ECB, December 2009.

7 Notably, both speed-of-adjustment coefficients are significant. It is also interesting to note that there is no convergence for listed banks towards the common long-run equilibrium profitability (ROA^*).

while competitive pressures are present among listed banks, the pressure from threats of takeovers is almost non-existent. This is not surprising in the light of evidence that listed companies are relatively few, usually large and that opportunities of takeovers are relatively rare.⁸

As regards unlisted commercial banks, a strong pressure towards homogeneous profitability emerges *within* countries (light blue bars), as could be explained by the fact that unlisted banks are normally rooted in national or regional realities and compete with each other on a smaller scale. The results given in the last panel tend to confirm this by showing that a much higher speed of adjustment is indeed due to the threat of takeovers when the target ROA is country-specific, more closely reflecting within-country features.

Overall, while there are signs of integration in the retail banking sector, as seen from the profitability trends, a large part of the convergence seems to be driven by competitive pressure that originated domestically, rather than from across borders.⁹ This confirms previous results that, over and beyond reasons related to the scope and scale of banking business models, the existing fragmentation of the retail banking sector might be related to country-specific legal and regulatory features and barriers to entry.

8 When the model is re-estimated using the ROE, however, the effect of market of corporate control becomes stronger, although not statistically significant.

9 The results obtained in this exercise are somewhat different from those given in R. Gropp and A.K. Kashyap, *op. cit.*, 2009. This may reflect differences in the country composition (the focus here is on euro area banks, while Gropp and Kashyap also considered the United Kingdom), in the definition of profitability (the ratio of net interest revenue to earnings assets here, while Gropp and Kashyap use that of pre-tax-profits to total assets), in the choice of type of banks (for instance Gropp and Kashyap categorise as commercial banks also bank holding companies, medium and long-term credit banks and mortgage banks, while they were excluded in this analysis) and in the sample period (2000-2007 here and 1994-2006 in the case of Gropp and Kashyap).

With regard to retail markets, it is also important to note that the infrastructure for retail payments in Europe has remained fragmented until recently, a factor that has contributed to the slow pace of integration of the market itself. Technical progress and the integration of market infrastructures have the potential to spur the integration of retail markets in the coming years. In particular, SEPA has now been launched in credit and debit transfers, and in card schemes. A wide-ranging application of SEPA instruments is expected to bring substantial benefits in the near future.³

Aside from what occurs through the direct cross-border provision of services, banking integration takes place via foreign establishments, either branches or subsidiaries. Foreign establishments have been playing an increasing role in the EU, and their share of total banking assets in 2008 amounted to over one-quarter, despite a slight decline from 2007. In terms of assets, subsidiaries

have a slight lead over branches as the preferred form of establishment across the EU.⁴ The total assets in branches have decreased slightly since 2007. The median share of assets that are held in foreign branches in the euro area countries, after having risen in 2008, decreased again in 2009 (see Chart C17 in the Statistical Annex).

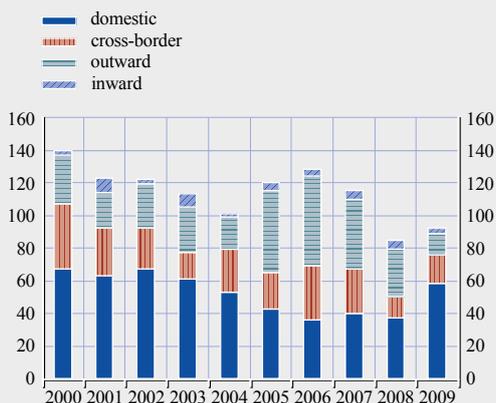
Cross-border ownership patterns differ sharply across individual EU areas. Whereas domestic institutions dominate, on average, in the EU-15, the share of foreign ownership in the banking sector in 2008 accounted for almost three-quarters in the Member States that joined the EU in 2004 and 2007. Almost 90% of the foreign assets in those Member States were held in subsidiaries.

Finally, Charts 30 and 31 show the number and value of bank M&A transactions, grouped

3 See the section on the SEPA project in Chapter III of this report.

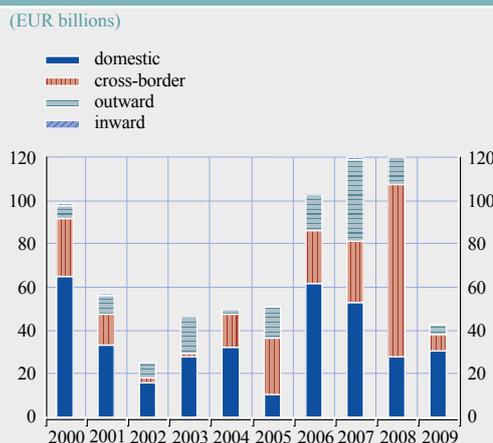
4 A notable exception is the United Kingdom where foreign assets are typically held in branches.

Chart 30 Bank M&As: number of transactions



Sources: Zephyr and Bureau Van Dijk.
Notes: M&As include both controlling and minority stakes. For some of the deals, the value is not reported. Cross-border M&As refer to intra-EU27 transactions involving a non-domestic acquirer. Inward refers to an M&A by a non-EU27 bank in the EU27 and outward indicates M&As of EU27 banks outside the EU27.

Chart 31 Bank M&As: value of transactions



Sources: Zephyr and Bureau Van Dijk.
Notes: M&As include both controlling and minority stakes. For some of the deals, the value is not reported. Cross-border M&As refer to intra-EU27 transactions involving a non-domestic acquirer. Inward refers to an M&A by a non-EU27 bank in the EU27 and outward indicates M&As of EU27 banks outside the EU27.

according to whether they have involved domestic, cross-border intra-euro area, or cross-border extra-euro area counterparts. Despite the higher uncertainty in financial markets, M&A activities continued to take place in 2008 and 2009. The cross-border component of M&A transactions, however, decreased significantly in 2008 and remained low in 2009, both within the EU and in other countries.⁵

Two main factors lie behind the reduction in cross-border M&As. First, an ESCB survey on a sample of EU cross-border banks in May 2009 revealed that many are now refocusing on their core activities and markets, thereby stopping or delaying cross-border plans.⁶ The bulk of the M&As that have taken place have therefore been motivated by survival and divestments of non-core business lines, rather than by strategic expansion, and banks that have retained a strong position may have been hunting for bargains in troubled markets. Second, M&A activities have shifted towards domestic deals owing to the higher government involvement in the banking sector, which resulted from the stabilisation measures adopted by many Member States following the intensified problems and the loss

of confidence in the markets in Autumn 2008. Indeed, in some countries, EU governments are now major stakeholders in the market owing to the recapitalisation measures adopted by the Member States.⁷ In this regard, and also more generally, care should be taken that the measures adopted by authorities to address concerns related to financial stability conditions do not lead to a fragmentation of the Single Market. Effective competition and the avoidance of the emergence of disincentive for cross-border activities need to be in the focus of the assessment of banks' restructuring plans.⁸

5 The total value of transactions in 2008 exceeded the value of 2007; however, the acquisition of ABN Amro by the consortium of Royal Bank of Scotland, Fortis and Santander alone accounted for 90% of the cross-border component of this figure.

6 The ESCB survey comprised 43 major banking groups with significant cross-border banking activities and head offices in EU Member States. The results were compared to those of a similar exercise in 2005, in order to determine trends in cross-border banking.

7 See, for example, J. Schildbach, "Global banking trends after the crisis", Deutsche Bank Research, *EU Monitor*, No 67, 15 June 2009, and "Back to the domestic market", *PWC Financial Services*, PriceWaterhouseCoopers, March 2009.

8 The European Commission which is responsible for this assessment, has also stressed this aspect in its Communication on the return to viability and the assessment of restructuring measures in the financial sector in the current crisis under the State Aid rules (OJ L 195 of 19.8.2009, pp. 9-20).

However, there are reasons to believe that the decrease in cross-border M&As may be temporary. First, the government recapitalisation measures are intended to be of limited duration, and opportunities for accelerated M&A activity may thus arise in the future. Second, the ESCB survey revealed that, rather than revising their internationalisation strategies, banks have temporarily stopped or delayed their plans. The situation is less clear-cut in emerging and developing countries. On the one hand, banks expect that business risks will increase in the near future owing to the economic downturn, and, on the other, they continue to consider the high growth potential in the host country to be the most important driver for a decision to expand abroad. The general recourse to traditional banking services, often associated with moderate profit margins, may also increase the attractiveness of exploiting profit opportunities in foreign markets with high growth potential.⁹ Therefore, M&A activity may quickly pick up not only in the EU, but also in emerging markets once the economic cycle turns.

3 THE NEW SUPERVISORY FRAMEWORK FOR THE EU

The public sector can support market forces in financial integration by providing a regulatory and supervisory framework for cross-border banks that fosters a single set of rules, as well as equal market access for, and equal treatment of, market participants across the EU. At the same time, differences in languages, customer preferences or national conditions, which are outside the remit of policy-makers, may be important factors behind fragmentation in some market segments.

The forthcoming changes in the EU supervisory architecture aim to meet the financial stability challenges of, in particular, the increasingly integrated financial markets. However, they also have the potential to significantly improve the level playing field for cross-border banks in the

EU, in particular by reducing the surplus that they have been paying in compliance costs as a result of the multiplicity of rules and supervisory contacts. In addition, the new supervisory architecture provides for a single body for macro-prudential supervision in the EU.

The section starts with a brief description of the history of supervisory cooperation in the EU, before explaining the structure of the proposed new supervisory architecture. The section concludes with a discussion of the impact on financial integration.

DEVELOPMENTS THUS FAR

The Single European Act and the Second Banking Directive created the Single Market for banks in the early 1990s, and the Financial Services Action Plan and the Lamfalussy process (see Box 2) have contributed to the harmonisation of the EU's regulatory and supervisory framework. The establishment of colleges of supervisors for large cross-border banks is another important contribution to supervisory cooperation and information exchange. Furthermore, the Memorandum of Understanding on crisis management between the EU supervisory authorities, central banks and finance ministries adopted in 2008 provides a flexible framework for crisis prevention and management, relying to the extent possible on existing networks. These initiatives have all pushed financial integration further, as demonstrated by the indicators in the previous section.¹⁰ Nevertheless, the national implementation of EU legislation, as well as the actual conduct of supervision across countries, has remained fragmented.

⁹ See also "Overcoming the crisis and moving beyond: EBF policy recommendations for advancing the integration of European financial services markets", European Banking Federation, Brussels, 2009.

¹⁰ The link between the regulatory and supervisory harmonisation and financial integration has also been acknowledged by market participants in surveys. See, for example, *The Global Financial Centres Index*, Vol. 3, City of London, March 2008.

Box 2

THE LAMFALUSSY PROCESS AND ITS REVIEW

After the introduction of the euro, it became evident that the EU's regulatory framework, based on national and uncoordinated systems, was inadequate in the face of the challenges of the single and progressively integrated EU financial market. A major problem in this context was that the directives and regulations agreed at the EU level were implemented differently across countries. This resulted in inconsistencies in the treatment of the same type of business, threatening the competitive neutrality of supervision. Consequently, in 2001 the European Council invited a Committee of Wise Men on the Regulation of European Securities Markets, also known as the Lamfalussy Committee, to investigate the matter and make reform proposals.

In its final report, the Committee recommended a four-level approach to European securities regulation and supervision.¹ The decision-making process should be speeded up by separating the principles of the legislative framework, expected to remain relatively stable over time, from the technical details, which are more likely to be subject to market developments. Whereas the former should be decided upon according to the normal co-decision procedure with the European Council and the European Parliament at so-called level 1, the latter should be adopted as implementing rules via a more flexible process at level 2, which would involve representatives of the Member States and the European Commission. The coherent implementation of measures across Member States would be strengthened through enhanced supervisory cooperation at level 3. Finally, level 4 would consist of measures of the European Commission to strengthen the enforcement of EU rules in the Member States.

The recommendations were adopted for the securities markets in 2002, and extended to cover banking, insurance, occupational pensions and investment funds in 2003. The Lamfalussy process attained broad support among the stakeholders. Decision-making and supervisory arrangements became far more efficient and flexible. The level 3 committees – the Committee of European Securities Regulators (CESR), the Committee of European Banking Supervisors (CEBS) and the Committee of European Insurance and Occupational Pension Supervisors (CEIOPS) – markedly enhanced multilateral cooperation between national supervisors. In addition, the private sector was included in the legislative process more systematically.²

The Ecofin Council reviewed the Lamfalussy process in December 2007 and agreed on a number of measures to exploit its full benefits.³ In particular, the level 3 committees were granted the possibility of using qualified-majority voting in their charters, and invited to report annually on the achievement of their objectives to the European Commission, Parliament and Council for better accountability. The Member States were invited to introduce a European dimension into the mandates of the national supervisors.⁴ Finally, the coherence between the so-called colleges of supervisors, set up to enhance coordination in the supervision of cross-border groups, was to be improved by means of a common set of level 3 operational guidelines.

1 "Final report of the Committee of Wise Men on the regulation of European securities markets", Brussels, 15 February 2001.

2 See, for example, *Final Report Monitoring the Lamfalussy Process*, Inter-institutional Monitoring Group, Brussels, October 2007.

3 "Council conclusions on review of the Lamfalussy process", 2836th Economic and Financial Affairs Council meeting, Brussels, 4 December 2007. See also COM Decision 2009/78/EC of 23 January 2009 establishing the Committee of European Banking Supervisors (OJ L 25, 29.1.2009, p. 23).

4 In its review of progress made in May 2008, the Council introduced a time limit of mid-2009 for the introduction of the European dimension into the supervisory mandates. See "Council conclusions on the EU supervisory framework and financial stability arrangements", 2866th Economic and Financial Affairs Council meeting, Brussels, 14 May 2008.

A review of the Lamfalussy process was already under way when the financial crisis deepened and made it clear that the EU supervisory architecture needed to be fundamentally revised in order to meet the financial stability challenges of the emerging Single Market. In general, the run-up to the crisis and its unfolding unveiled shortcomings, including some relating to (i) the capability of public authorities to identify all relevant risks and vulnerabilities to financial stability, (ii) the ability to translate warnings about identified risks into concrete policy actions and changes in the behaviour of market participants and (iii) the effectiveness of cross-border cooperation and coordination among the competent authorities. Consequently, the European Commission in October 2008 mandated an independent High Level Group, named after its Chairman as the de Larosière Group, to develop proposals to strengthen the supervision of European financial institutions and markets, and financial stability arrangements. In February 2009, the group published a comprehensive set of recommendations relating to international cooperation in financial regulation, the EU's supervisory architecture and cooperation between authorities in crisis situations.

THE FUTURE SUPERVISORY ARCHITECTURE

In its final report of February 2009, the de Larosière Group proposed that the European financial supervisory framework should be based on two pillars, tasked with micro and macro-prudential supervision respectively at the EU level. Following the support of the European Council in June 2009, the European Commission proposed on 23 September 2009 that two bodies be established, a European System of Financial Supervisors (ESFS) and a European Systemic Risk Board (ESRB).¹¹ The Ecofin Council agreed on the substance of the draft Regulation on the ESRB on 20 October, and on a general approach regarding the draft Regulation establishing the European Supervisory Authorities (ESAs) on 2 December. As part of the co-decision procedure for the adoption of the legislative proposals, the European Parliament is now in the process of discussing them.

The main elements of the ESFS are the national supervisors and three European Supervisory Authorities (ESAs), namely a European Banking Authority (EBA), a European Insurance and Occupational Pensions Authority (EIOPA), and a European Securities and Markets Authority (ESMA).¹² These authorities will be founded through a transformation of the existing level 3 committees. In addition to the existing tasks of the level 3 committees, the ESAs will carry out, inter alia, the following activities:¹³

- the issuance of binding and non-binding rules, also with a view to creating a single EU rulebook;
- the promotion of a consistent application of EU legislation and of a common supervisory culture across the Member States;
- the provision of binding mediation in the case of disagreements between national supervisors;
- the imposition of specific common actions to be taken by supervisors in a cross-border emergency situation;
- the promotion of efficiency and coherence across colleges of supervisors;¹⁴

11 See the proposals for a Regulation establishing a European Banking Authority (COM (2009) 501 final), a European Insurance and Occupational Pensions Authority (COM (2009) 502 final) and a European Securities and Markets Authority (COM (2009) 503 final), and for a Regulation on Community macro prudential oversight of the financial system and establishing a European Systemic Risk Board (COM (2009) 499 final).

12 The proposal differs from the recommendation in the de Larosière Report in that occupational pensions are also covered by the ESFS.

13 These tasks are subject to the qualification in the Ecofin Council's general approach that the decisions taken by the ESAs should not have any effect on the fiscal responsibilities of the Member States.

14 The establishment of supervisory colleges for the performance of certain tasks related to the consolidated supervision of cross-border EU banking groups is mandated by the end of 2010 in the Directive 2009/111/EC of the European Parliament and of the Council of 16 September 2009 amending Directives 2006/48/EC, 2006/49/EC and 2007/64/EC as regards banks affiliated to central institutions, certain own funds items, large exposures, supervisory arrangements, and crisis management (OJ L 302, 17.11.2009, pp. 97-119).

- the establishment and management of EU supervisory databases; and
- the direct supervision of credit rating agencies by ESMA.

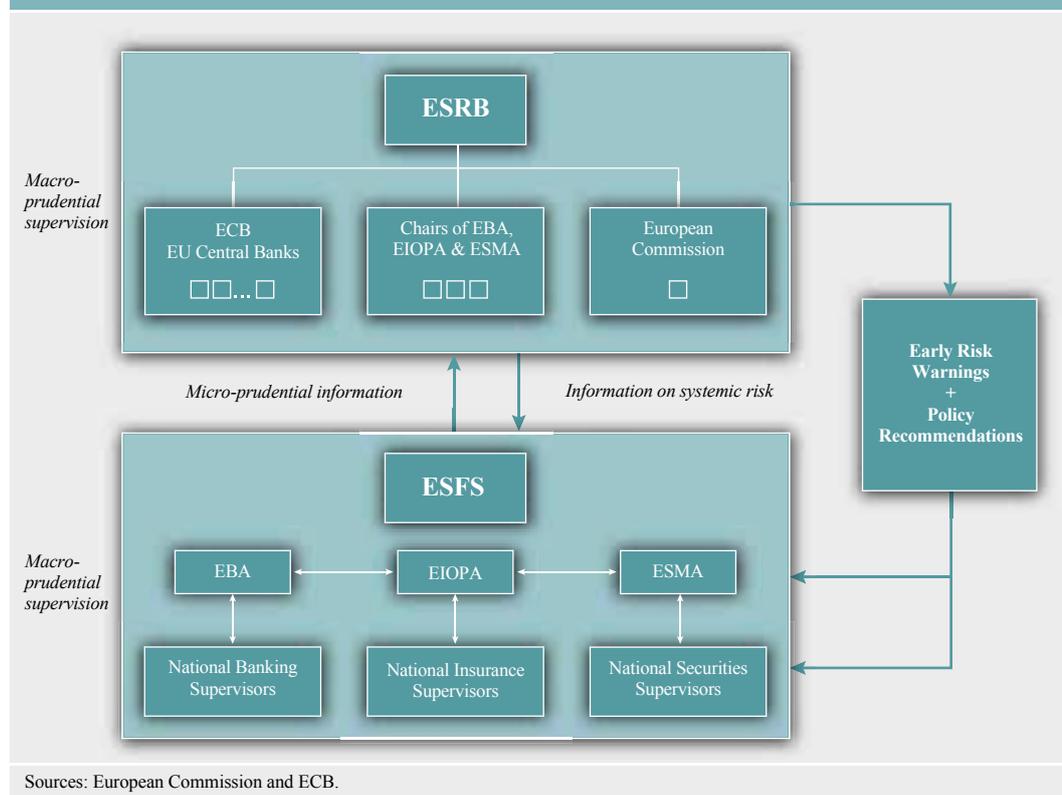
The *ESRB* will be established as a new body without legal personality to conduct macro-prudential oversight in the EU. Its tasks include risk assessment and monitoring for the entire financial system in the EU, and the issuance of risk warnings and recommendations in the event of these being deemed necessary, as well as the monitoring of the follow-up actions to such warnings and recommendations. The ESRB will work together with the IMF, the Financial Stability Board, and other relevant financial institutions and third-country bodies at the international level. The ECB will take care of

the secretariat function and thereby provide the ESRB with analytical, statistical, administrative and logistical support. The secretariat will moreover also support the work of the Advisory Technical Committee of the ESRB.¹⁵

Finally, the European Commission's proposal to establish the ESFS and the ESRB is accompanied by a proposal for what is known as

¹⁵ See the proposal for a Council Decision entrusting the European Central Bank with specific tasks concerning the functioning of the European Systemic Risk Board, COM (2009) 500 final, for the ECB responsibilities. The ECB's statistical support will draw from information made available by the ESAs and by the ESCB on financial institutions and markets, and on their interaction with the non-financial economy. The Advisory Technical Committee provides advice and assistance to the General Board on the issues that are within the scope of the latter and consists of representatives of the national central banks, ECB, national supervisory authorities, ESAs, the European Commission and the Economic and Financial Committee.

Chart 32 Structure of the new EU architecture for financial supervision



an Omnibus Directive. The proposal outlines the necessary changes to several EU financial sector directives, in order to make them consistent with the new supervisory set-up.¹⁶

The ESFS and the ESRB constitute the core elements of the new financial supervisory architecture (see Chart 32). The organisation of micro-prudential supervision at the EU level will remain sector-oriented.¹⁷ It builds on the existing level 3 committees and is aimed at intensifying supervisory convergence and coordination at the EU level via the transfer of some competences to the EU level. A Joint Committee of ESAs will be established for regular and close coordination to ensure consistency across the three sectors. The macro-prudential approach, by contrast, provides for the establishment of a new independent body for macro-prudential oversight, covering all financial sectors. This is due to the fact that systemic risk can stem from any relevant part of the financial system, so that the effective monitoring and detection thereof requires a comprehensive view. According to the proposals, the ECB President and Vice-President and the Governors of all EU central banks will be members of the ESRB's General Board, as well as the chairpersons of the three ESAs and a representative of the EU Commission.

In order to be effective, the EU's new financial supervisory structure will require efficient cooperation between the ESFS and the ESRB. In this regard, the ESRB will participate as an observer in the meetings of both the Joint Committee of the ESAs and the Board of Supervisors of each ESA. Conversely, the ESRB will include the three chairpersons of the ESAs in its composition and will moreover have the national supervisors as non-voting members. The ESFS will provide data input to the work of the ESRB. In addition, it will contribute to a proper follow-up to the warnings and recommendations of the ESRB. The ESRB, for its part, will provide its views on the macro-prudential environment and systemic risk for the benefit of the national supervisory authorities.

Appropriate coordination mechanisms will need to be put in place for exchanging information between the ESRB and the ESFS.

The EU's new financial supervisory architecture is expected to be in place by the end of 2010. The general approach agreed with respect to the proposed ESAs Regulation on 2 December 2009 provides for the three ESAs to be established on 1 January 2011. A review of the functioning of both the ESRB and the ESFS is planned for no later than 2013.

IMPACT OF THE NEW ARCHITECTURE ON FINANCIAL INTEGRATION

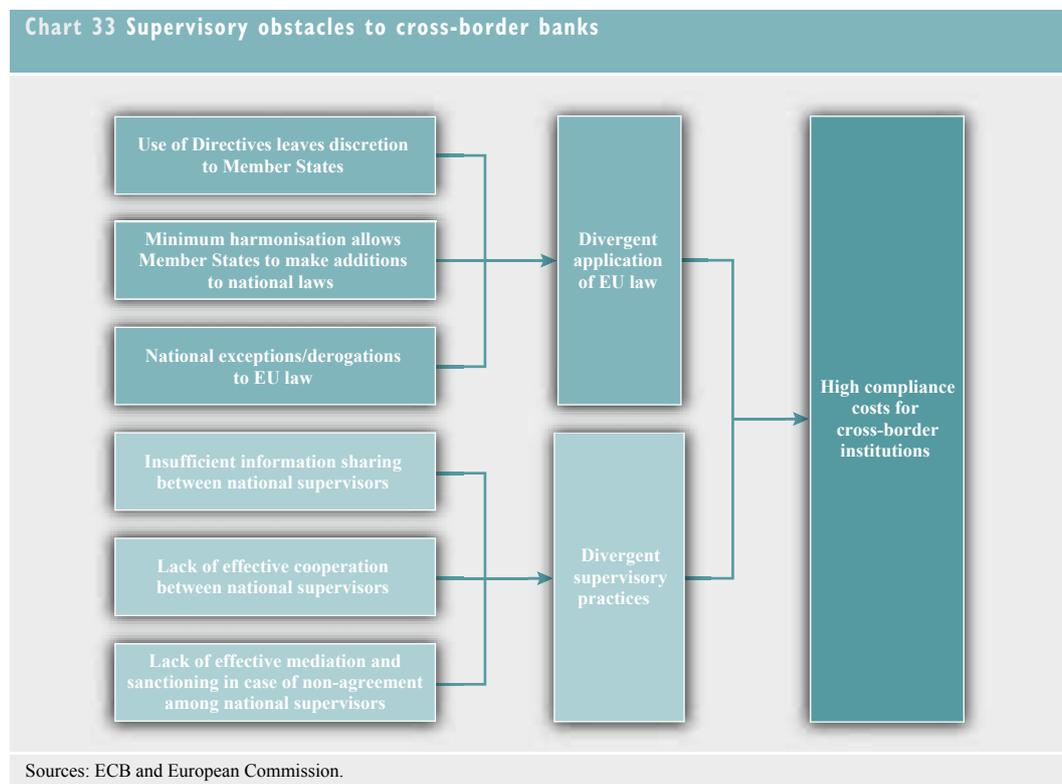
A more effective framework for financial supervision was needed, first and foremost, to meet the financial stability challenges related to the increased level of financial integration in Europe. At the same time, the new framework has the potential to foster financial integration further in providing a more harmonised regulation and supervision across Member States. Chart 33 illustrates how factors contributing to the fragmentation of financial supervision might lead to multiple interpretations of EU law and to the coexistence of diverging supervisory practices. This, in turn, can hinder the development of cross-border banking because it leads to high compliance costs, owing to the obligation to comply with different rules and interact with several authorities. High compliance costs consequently reduce the scope for benefiting from economic synergies from integrated corporate processes and structures.¹⁸

¹⁶ Such changes include the conversion of the three supervisory committees into authorities. See the proposal for a Directive amending Directives 1998/26/EC, 2002/87/EC, 2003/6/EC, 2003/41/EC, 2003/71/EC, 2004/39/EC, 2004/109/EC, 2005/60/EC, 2006/48/EC, 2006/49/EC, and 2009/65/EC in respect of the powers of the European Banking Authority, the European Insurance and Occupational Pensions Authority and the European Securities and Markets Authority, COM (2009)576 final.

¹⁷ At national level, Member States retain different models of micro-prudential supervision: sector-oriented, based on objectives ("twin peaks"), or consolidated in a single supervisory body.

¹⁸ See also "Impact assessment", SEC(2009) 1234, European Commission, 23 September 2009.

Chart 33 Supervisory obstacles to cross-border banks



The creation of the ESFS is expected to reduce obstacles to financial integration by ensuring that EU law is transposed uniformly into national law and is consistently applied in day-to-day supervision. In particular, the ESFS will reduce the room for diverging national interpretations through the single EU rulebook of binding technical standards, and non-binding guidelines and recommendations that will be subject to a “comply or explain” mechanism. Complying with one set of rules, instead of with several deviating national regulations, will reduce costs for cross-border banks and improve the level playing field in the Single Market.

In addition to the development of a single EU rulebook, the ESFS will promote the equal treatment of market participants. The expanded mandates of the ESAs will render them more effective than the level 3 committees are under their current mandates in promoting the consistent application of EU rules. The new mandates will make a two-fold improvement

of coherence possible in the treatment of cross-border banks: first, one across jurisdictions and, second, one across colleges of supervisors.

In terms of differences across jurisdictions, the new structure is expected to improve information-sharing and cooperation, create effective mediation mechanisms between national supervisors and further enhance convergence of national supervisory practices, also by reinforcing the possibilities to challenge the decisions of national supervisors at the EU level. The new intervention powers of the ESAs are key to achieving these objectives. In particular, the ESAs will form a single entity for the settlement of disputes between supervisors in situations where the authorities in question have been unable to reach an agreement during a given period of conciliation. As a last resort, the ESAs may moreover address financial institutions directly in specific cases of non-compliance by national authorities. Finally, consistency across jurisdictions will also be increased via the EU’s

central supervisory databases, which are to be used for peer analysis and information-sharing among the supervisors.

Additional tasks of the ESAs vis-à-vis the colleges of supervisors are envisaged to improve the equal treatment of cross-border banks and coherence across the colleges. The ESAs will be responsible for the coordination of supervisory colleges and their consistent and effective functioning. To this end, they may participate as observers in colleges and receive all relevant information that is shared among the members of the colleges. The supervisory databases are likewise aimed at facilitating the work of the colleges of supervisors by making all the relevant information available to them. The ESAs will also determine and collect as appropriate all relevant information from national supervisory authorities in order to facilitate the work of those colleges and will establish and manage a central system to make such information accessible to these authorities in colleges of supervisors.¹⁹

The ESRB will support the further integration of financial markets through its contribution to increased financial stability in the EU. In order to enable the market participants to fully exploit the possibilities offered by cross-border activities in the EU, they will have to be confident that interdependences between the countries, institutions and markets are properly taken into account by authorities when fulfilling their prudential tasks. Enhanced stability is therefore expected to improve the smooth functioning of the internal market. Conversely, the role to be played by the ESRB in safeguarding systemic stability in Europe is expected to become even more important in the face of intensifying financial integration, i.e. the need to identify potential vulnerabilities associated with increased financial integration.

¹⁹ This will include guiding rules that may contribute to more comparable quantitative and qualitative information.

B. EUROPEAN COVERED BONDS

Over the past decade, covered bonds have developed from a traditional source of secured funding that existed only in few countries to one of the key funding instruments for European credit institutions. With volume of €2.4 trillion outstanding in 2008,²⁰ the covered bond market has become an important segment of European capital markets.

While covered bonds existed only in few countries, such as Germany, Denmark, France and Spain, with sometimes very long historical traditions a decade ago, almost all European countries have now introduced dedicated – though not internationally homogeneous – covered bond legislations.

The Special Feature reviews the main developments in the covered bond market in the past ten years and investigates the extent to which this form of funding has progressed towards more common features across the euro area countries. Particular attention is paid to the impact of the covered bond purchase programme launched by the Eurosystem in July 2009 in order to revitalise the covered bond market, since this market, too, suffered from the effects of the financial market turmoil.

The Special Feature also assesses the extent to which there is still fragmentation along national borders, in particular at the regulatory level, and where scope can be seen for further integration, an issue that has in part already been addressed by some market-led initiatives.

I INTRODUCTION

Covered bond markets at the euro area level are still clearly separated by different legal and regulatory national frameworks, but show signs of an increasing degree of homogeneity, both in terms of yields and with respect to structural features such as the nature of the cover pool and the maturity structure. Although some two-thirds of the euro area market remains concentrated in three countries,²¹ the covered bond market has also seen an increase in the number of issuing countries, especially in the last two years. In May 2009,

the Eurosystem's covered bond purchase programme (CBPP) seems to have given new impetus to covered bonds markets in Europe.

It may therefore be inferred that, since the inception of the euro, the European covered bond markets have made some progress towards integration. A decade ago, these markets were almost totally national and confined to only a few countries. Meanwhile, covered bonds have increasingly become a cross-border product with a European focus. The term covered bonds has been established (although a clear definition is lacking), which was literally non-existent ten years ago. At that time, covered bonds were classified as mortgage bonds (for covered bonds that were backed by mortgages) or by the names for the respective national product (*Pfandbriefe*, *cedulas*, *obligation foncière*, etc.). Nowadays, the joint efforts of national covered bond industries to express their common concerns via a European organisation can also be seen as a reflection of the move towards further integration and internationalisation. The European Covered Bond Council (ECBC), which was established in 2004, currently represents the interests of the covered bond market industry from 20 different countries. Furthermore, almost all EU Member States have now introduced covered bond legislation, in line with the recommendation which the Mortgage Funding Expert Group made in its 2006 report to the European Commission. But despite these developments, it is also evident that the market is still considerably fragmented along the different national jurisdictions.²² There is still a clear home bias, although international investors have expressed their interest in entering the various national market segments. The lack of a common definition and standard makes it challenging to compare the product across national legal frameworks. This was also one of the reasons why the criteria for covered bonds that are eligible for the CBPP have remained rather general, given the need to embrace the whole market. Further progress towards more

²⁰ Data provided by the ECBC.

²¹ France, Germany and Spain.

²² In some countries (e.g. in Hungary), only specialised mortgage banks are authorised to issue covered bonds.

harmonisation is desirable in order to broaden the investor base and to strengthen covered bonds further as a separate and homogeneous asset class with clearly defined quality standards. At the same time, it should be acknowledged that differences across national jurisdictions (e.g. the geographical dispersion of the cover pool) might provide issuers and investors with additional diversification opportunities.

2 WHAT IS A COVERED BOND?

Covered bonds are dual recourse bonds issued by (or offering recourse to) a credit institution and with priority recourse to a cover pool of collateral,²³ typically mortgages or public sector loans. In contrast to asset-backed securities (ABSs), there is no credit risk transfer to the bondholder. Another difference is to be found in the fact that covered bond issuers are obliged to safeguard a certain value of the covered bond holders' collateral. Issuers of covered bonds are liable for all payments of interest and principal, which is why investors benefit from double protection against default. Covered bonds are therefore often referred to as dual recourse instruments.

The main advantage of covered bonds can therefore be seen in reduced funding costs for banks and usually high standards of investor protection.

In Europe, the vast majority of covered bonds are issued on the basis a special legislative framework that ensures the protection of bond investors in the event of the bankruptcy of the issuer (see Section 4).

Most covered bonds are issued in the so-called Jumbo format. This benchmark product, which is subject to certain requirements,²⁴ was introduced as a covered bond offering high liquidity and aimed at attracting international investors in Germany in 1995.

To date, however, no commonly agreed clear definition of a covered bond exists. Agreement has

been reached only on a rather general definition or characterisation, which has been derived from the UCITS Directive²⁵ and the Capital Requirements Directive²⁶ (see Section 4).

3 MARKET DEVELOPMENTS AND SOME BASIC STRUCTURAL FEATURES

Driven by the issuance of Jumbo Pfandbriefe in Germany since 1995 (see above), the covered bond market started to change from a purely domestic market into a rather more cross-border market. But it was only with the introduction of the euro and the increased need of liquidity that covered bond markets started to experience buoyant growth. The amounts outstanding of covered bonds reached more than €100 billion at the end of 1997, €600 billion in 2000 and about €2.4 trillion at the end of 2008 (see Table 1).

Starting with the long-established covered bond markets in Germany, France and Spain, an increasing number of European countries have allowed the issuance of covered bonds (see Chart 34)²⁷ Currently there are 24 jurisdictions in Europe²⁸ that allow financial institutions to issue covered bonds. In the euro area, there are 14 such jurisdictions.

23 For the definition, see *Covered bonds in the EU financial system*, ECB, 2008.

24 The main features of Jumbo bonds are a minimum issuance size of €1 billion and the reciprocal quotation of bid/ask prices by at least five market makers.

25 Council Directive 85/611/EEC of 20 December 1985 on the coordination of laws, regulations and administrative provisions relating to undertakings for the collective investment in transferable securities (UCITS) (OJ L 375, 31.12.1985, pp. 3-18).

26 Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006 relating to the taking up and pursuit of the business of credit institutions (recast) (OJ L 177, 30.6.2006, pp. 1-200) and Directive 2006/49/EC of the European Parliament and of the Council of 14 June 2006 on the capital adequacy of investment firms and credit institutions (recast) (OJ L 177, 30.6.2006, pp. 201-255).

27 Outside the euro area, the Danish covered bond market is the second largest in the EU in terms of its size (outstanding volume as well as yearly issuance), while the UK and Swedish markets take fifth and sixth place respectively.

28 These are Austria, Bulgaria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Luxembourg, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Table 1 Outstanding amounts of covered bonds

(EUR millions)

Outstanding (in mln EUR)	2003	2004	2005	2006	2007	2008
Total covered bonds outstanding						
Outstanding covered bonds backed by public sector	869,714	858,645	869,924	884,038	858,773	772,999
Outstanding covered bonds backed by mortgage	606,009	677,427	784,968	963,403	1,161,268	1,514,958
Outstanding covered bonds backed by ships	10,087	9,542	10,586	11,341	13,136	16,333
Outstanding covered bonds backed by mixed assets	34,530	41,350	50,040	61,930	80,097	80,631
Total outstanding	1,520,340	1,586,964	1,715,518	1,920,712	2,113,274	2,384,921

Source: ECBC.

Notes: Data refer to Austria, Bulgaria, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom and the United States.

In terms of market share, Germany had the largest share of bonds outstanding in 2008, with a total amount outstanding of about €800 billion, followed by Spain, with an amount outstanding of about €332 billion, and France, with an amount outstanding of about €265 billion.²⁹ As regard Jumbo bonds, Spain accounted for 37% of the total market, Germany for 34% and France for 17%, which reveals that the covered bond market remains relatively concentrated in a few countries, despite the increasing number of euro area countries issuing covered bonds.

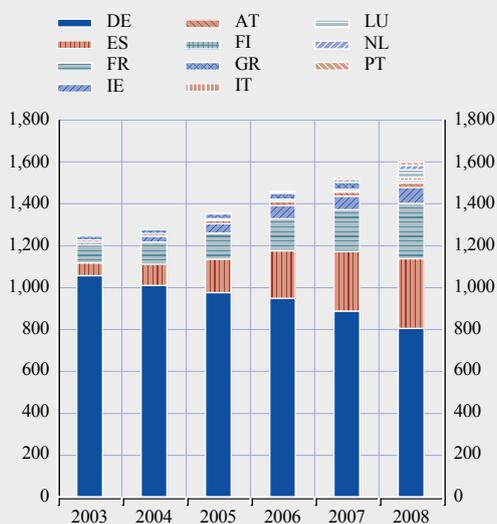
Chart 35 shows the development in the issuance volume of Jumbo covered bonds by cover pool between January 2001 and December 2009. It reveals the collapse of the market at the end of 2008 and its subsequent recovery in concurrence with the implementation of the CBPP in July 2009 (see Section 5).

Viewed from a historical perspective, the development of issuance volumes offers interesting insights. First of all, the issuance

²⁹ Date provided by the ECBC.

Chart 34 Outstanding amounts of covered bonds in selected euro area countries

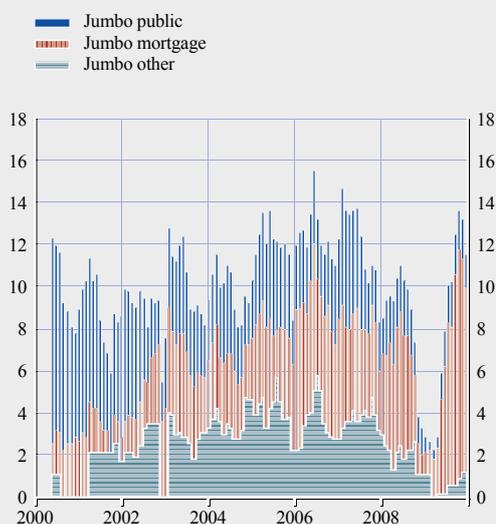
(EUR billions)



Source: ECBC.

Chart 35 Issuance volumes of Jumbo covered bonds

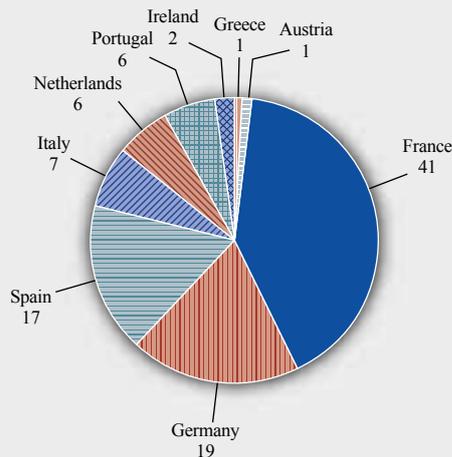
(EUR billions; six-month moving average)



Source: Dealogic.

Chart 36 Issuance volumes of Jumbo covered bonds, broken down by country

(Jumbo issuance volume in percentage; 1 January 2009 until 2 November 2009)



Sources: Dealogic and ECB calculations.

Chart 37 Jumbo covered bond issuance in the euro area since May 2009, broken down by maturity

(EUR billions; data until 14 December 2009)



Source: Dealogic.

Note: "Jumbo covered bonds" include public, mortgage and other asset-backed Jumbo covered bonds.

volumes for all countries fell dramatically during the financial market turmoil. Second, the decline was most pronounced for Germany. Third, while the market has been dominated by Germany in terms of issuance more and more countries have been issuing covered bonds since 1999.

Looking forward by extrapolating the current trend, it is fair to expect that the market for Jumbo covered bonds will become less concentrated and that the divergence of issuance volumes across countries will stabilise or decline further. This is supported, for instance, by the fact that more countries are expected to start issuing covered bonds (Belgium, for example, passed a law in October 2009 that allows covered bonds to be issued, while Cyprus is preparing legislation on covered bonds).

As regards the maturity of the covered bonds issued, most bonds continued to be issued in the five to ten-year maturity bracket, but still mainly concentrated on the five- or seven-year maturities and to a much lesser extent on the ten-year maturity (see Table 1). In recent years, however, a tendency towards issuance at longer maturities has become more evident, which

indicates that covered bonds are well-established as a long-term funding instrument. Viewed from a country perspective, bonds with longer maturities have been issued mainly by countries that have joined the market more recently, such as Portugal, while other countries like France and Germany have also seen an increase in issuance volumes at longer maturities.

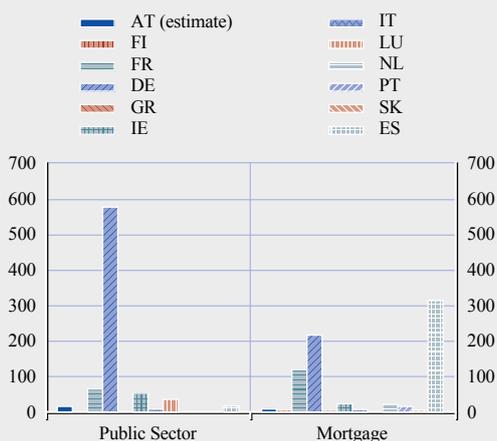
All in all, the market remains focussed on the medium to long-term maturity brackets, but on average there is a trend towards a lengthening of the maturity.

In terms of the cover pool, while the market has traditionally seen a predominance of public loans, mortgage-backed loans have gained steadily in importance in recent years, while that of covered bonds backed by public loans has declined (see Table 1). In 2006, the outstanding value of covered bonds backed by mortgage loans was larger than that of such bonds backed by public loans.³⁰ In the EU, ship loans are only used by a minority of countries, and only by Germany in

³⁰ See *Fact book*, ECBC, 2009.

Chart 38 Outstanding amounts with cover pool

(public sector and mortgage bonds; in EUR billions)



Source: ECBC.

the euro area. From a country perspective, this was due mainly to the diminishing supply of public assets eligible for the public pool in Germany and, at the same time, to the growing popularity of bonds backed by mortgage loans in countries that had experienced buoyant housing market developments and a rapid growth of mortgage credit. Overall, the majority of covered bonds backed by public loans has been issued in Germany, while there has been a more balanced geographical distribution for bonds backed by mortgage loans, with France, Spain and Germany the main countries of issuance.

As described in the previous section, Jumbo covered bonds accounted for the most liquid part of the market, at least until 2008.³¹ In the case of Jumbo covered bonds, too, market shares are relatively concentrated.

4 THE REGULATORY FRAMEWORK

The majority of European covered bonds are issued on the basis of a special legal framework (and are thus “regulated covered bonds”), which ensures that the bondholder has a privileged position in the event of a default by the issuer.

This usually means that the bondholder’s investment will not become due immediately after an issuer’s default, i.e. that both cash flows and the maturity remain as agreed, and that the bondholder has a priority claim on the proceeds of the cover assets ahead of unsecured creditors. In most cases, the latter is achieved through asset segregation, which ensures that the cover assets are not included in the bankruptcy procedure.³²

Most regulated covered bonds are designed to comply with the provisions of Article 22(4) of the UCITS Directive and with the Capital Requirements Directive (CRD) (see Box 3). Since covered bonds in order to be CRD-compliant must be UCITS-compliant, all CRD-compliant covered bonds are automatically compliant with the latter. For this reason, the vast majority of regulated covered bonds comply with both directives. One exception is to be found in the Netherlands, where there are UCITS-compliant bonds that do not comply with the CRD. Thus far (up to 2009), 24 countries in Europe have introduced special covered bond legislation. The European regulated covered bond market is therefore characterised by many different national legal frameworks for covered bonds, which can – irrespective of their common goals – vary substantially in respect of many features, such as issuer characteristics, cover pool requirements, asset liability management and the monitoring of the cover pool.

In addition to regulated covered bonds, more and more structured or general law-based covered bonds have been issued in recent years. These are designed to achieve similar economic effects as regulated covered bonds, but do so via contractual arrangements, instead of on the basis of special legislation. In some countries, such as France, the Netherlands and the United Kingdom, regulated covered bonds and structured covered bonds coexist.

³¹ It should be recalled that Jumbo covered bonds, too, suffered in terms of secondary market liquidity when the market seized up in the wake of the turmoil.

³² *Covered bonds in the EU financial system*, ECB, 2008.

EU LEGISLATION

UCITS Directive

Article 22(4) of the UCITS Directive, in which the special character of covered bonds is enshrined, stipulates certain minimum standards for the protection of bondholders. In the UCITS Directive, covered bonds are defined as bonds issued by a credit institution that is subject by law to special public supervision designed to protect bondholders. In particular, bondholder claims must be secured throughout the term of the bonds by assets that would, under the applicable law, be used on a priority basis to reimburse the principal and to pay the interest in the event of an issuer's failure.

Covered bonds that comply with these requirements are considered particularly safe investments. Therefore, investment funds (i.e. undertakings for the collective investment in transferable securities) can invest up to 25% (instead of at most 5%) of their assets in the covered bonds of a single issuer that fulfils the criteria of Article 22(4). Similar, the EU Directives on Life and Non-Life Insurance¹ allow insurance companies to invest up to 40% (instead of at most 5%) in covered bonds of the same issuer that meet the requirements of the UCITS Directive.

Capital Requirements Directive

Under the Capital Requirements Directive (CRD), which provides the framework for implementing Basel II rules on capital standards in the EU, covered bonds qualify for reduced risk weights if they comply with the definition in the UCITS Directive and with certain eligibility requirements for underlying assets. The categories of assets listed in the CRD as complying with such requirements include, for example, exposures to governments or other public sector entities in the EU, exposures to non-EU governments and public sector entities that qualify for credit quality step 1 under the "standardised approach", loans secured by residential or commercial property with a loan-to-value (LTV) ratio not higher than 80% and 60% respectively, loans secured by ships with an LTV ratio not higher than 60% and exposures to banks that qualify for credit quality step 1 and do not exceed 15% of the cover pool.^{2,3}

1 Council Directive 92/96/EEC of 10 November 1992 on the coordination of laws, regulations and administrative provisions relating to direct life assurance and amending Directives 79/267/EEC and 90/619/EEC (third life assurance Directive) (OJ L 360, 9.12.1992, pp. 1-27) and Council Directive 92/49/EEC of 18 June 1992 on the coordination of laws, regulations and administrative provisions relating to direct insurance other than life assurance and amending Directives 73/239/EEC and 88/357/EEC (third non-life insurance Directive) (OJ L 228, 11.8.1992, pp. 1-23).

2 See *Fact Book*, ECBC, 2009; and *Covered bonds in the EU financial system*, ECB, 2008.

3 The European Commission had launched a public consultation in mid 2009 on a proposal to change the CRD, which generally aims at harmonising EU wide banking standards further. The changes proposed would also have an impact on covered bonds' risk weight, such as, among other issues, a proposed 20% limit for MBSs in the cover pool as of end-2010. However, no amendment has been adopted by January 2010.

Although both directives already provide some harmonisation for covered bonds, the definitions therein remain general, in particular those in the UCITS Directive. Regulated covered bonds can differ substantially across the various European countries with regard to a number of features

such as the issuer type (specialised credit institution versus universal credit institution with or without a special licence), the type and structure of cover assets (mortgage loans, public sector loans, ship loans, residential mortgage-backed securities and aeroplane loans), the

loan-to-value ratios, over-collateralisation, cover pool monitoring requirements (independent monitoring is required in most cases), etc. A comprehensive analysis of the main features of European covered bonds and their differences across countries is provided in the ECB's publication "Covered bonds in the EU financial system" of December 2008.

The diversity of the covered bond world and the rather general definitions provided in the UCITS Directive and the CRD make it difficult to agree on a clear common definition of covered bonds. The attempt by the ECBC to identify the essential features of covered bonds can be seen as progress in direction of a more widely recognised common definition of covered bonds.³³ However, further refinements would be desirable, as outlined in Section 6.

5 RECENT PRICE DEVELOPMENTS AND IMPACT OF THE COVERED BOND PURCHASE PROGRAMME

In terms of yield developments, as in the government bond market and, to some extent, in the corporate bond market, movements in covered bond yields typically show a high degree of synchronisation across countries. This is not surprising as covered bonds have traditionally been perceived as close substitutes for government bonds, although they carry a somewhat greater credit risk. Chart 39 shows the evolution of the spread of selected covered bond yields vis-à-vis German five-year government bond yields as from July 2008.

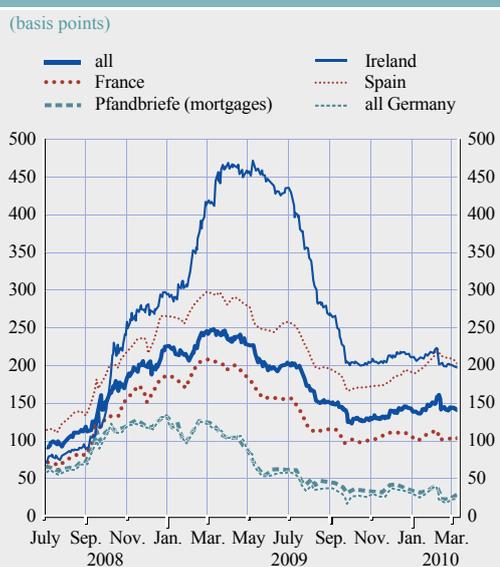
While yield spreads of different countries have clearly shown a high degree of synchronisation, i.e. have all moved up or down at the same time, they have also been characterised by a relatively low dispersion (see Chart 41), and thus point towards a process of convergence between covered bonds of different countries or covered bond legislation. Not surprisingly, this was not the case during the financial turmoil. Starting in the summer of 2007, the dispersion in yield spreads increased significantly, while they all

widened and continued to maintain a high degree of synchronisation. The main factor behind the widening of the spread has been the "country-risk" component, although the developments in spreads could also indicate that the difference between countries and the respective national legislative frameworks does indeed play a role. According to market participants, liquidity risk has played a non-negligible role with regard to the comparatively high risk premia. Also, the perception of investors vis-à-vis covered bonds has changed since the beginning of the crisis. Furthermore, the announcement by

33 Covered bonds are characterised by the following common and essential features that are set out in legal frameworks based either on special laws or general legislation:

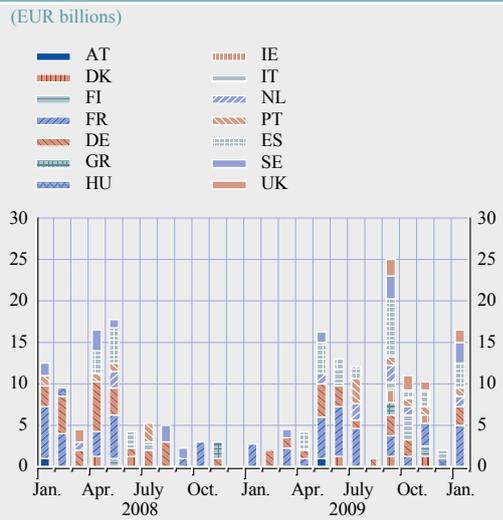
- the bond is issued by – or bondholders otherwise have full recourse to – a credit institution that is subject to public supervision and regulation;
- bondholders have a priority claim against a cover pool of financial assets over unsecured creditors of the credit institution;
- the credit institution has the ongoing obligation to maintain sufficient assets in the cover pool to satisfy the claims of covered bondholders at all times; and
- the obligations of the credit institution in respect of the cover pool are supervised by public or other independent bodies (ECBC).

Chart 39 Covered bond spreads against German five-year government bonds



Sources: Datastream and ECB calculations.

Chart 40 Issuance volumes of Jumbo covered bonds, broken down by country of the issuer

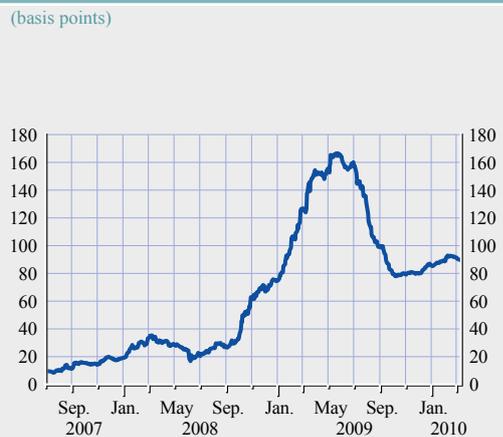


Source: Dealogic.

Standard & Poor's in 2009 of amendments to the rating methodology led to some uncertainty among market participants.

Although the covered bond market was not affected severely by the crisis until mid-2008, primary market issuance has dropped significantly since September 2008, and secondary market liquidity, too, has dried up.

Chart 41 Cross-country dispersion of covered bond spreads against German five-year government bonds



Sources: Datastream and ECB calculations.

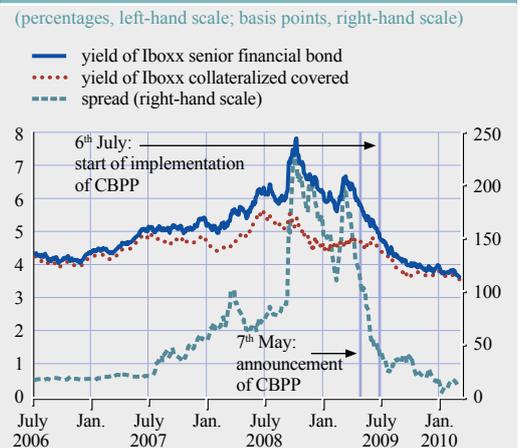
On 7 May 2009, the Governing Council announced that, in order to revitalise the market, the Eurosystem would purchase covered bonds issued in the euro area up to a total value of €60 billion. The CBPP, which was put in place in July 2009, has had positive effects on the covered bond market, with first signs of a recovery already being observed immediately after the announcement in May. The programme has mainly led to more primary market activity, with increased issuance volumes even in countries that are not covered by the CBPP (see Chart 40), and to sharply declining yield spreads.³⁴

In addition, the cross-country dispersion of yield spreads declined rapidly after July 2009, and stabilised at around 80 basis points (see Chart 41). Since September/October 2009, however, risk premia have not narrowed significantly further.

However, a decline of this kind was not observed only in the covered bond market. As can be seen in Chart 42, the yields on corporate bonds issued by banks, as measured by the Iboxx index, decreased as well.

³⁴ However, issuance volumes in France and Germany were below their pre-crisis levels in 2009, despite the positive impact of the CBPP.

Chart 42 Unsecured bonds and covered bond spreads



Sources: Datastream and ECB calculations.

While caution must be exercised on account of the simplicity of the analysis, such results give some support to the notion that, given the progress made in integration, developments in the covered bond market may have an impact on related markets.

6 SCOPE FOR FURTHER INTEGRATION AND MARKET-LED INITIATIVES

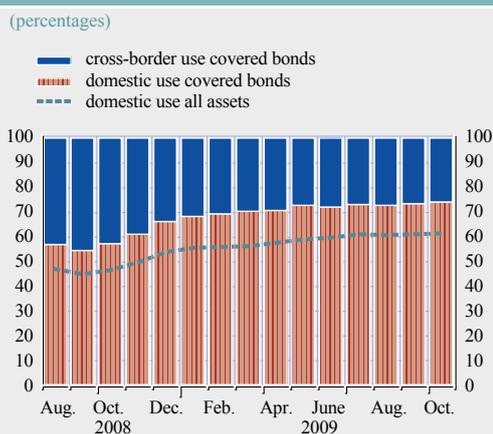
The differences in national regimes and the increased complexity of some covered bonds make it difficult and costly for investors to accurately assess the quality of the individual products. Covered bond investors tend to concentrate on their national markets, a pattern that has actually been reinforced since the financial turmoil. Bank of America/Merrill Lynch, for instance, has repeatedly reported an increased home bias among covered bond investors.³⁵ The same pattern can be observed with regard to the covered bonds that banks use as collateral in Eurosystem credit operations. When analysing the asset pool that banks put forward as collateral for Eurosystem credit operations, two patterns can be identified.

First, compared with other asset classes, banks generally hold a relatively higher share of domestic covered bonds. Between August 2008 and October 2009, this share was approximately 10-15% higher for covered bonds than for all other assets that can be used as collateral (Chart 43).

Second, while the domestic share for covered bonds decreased from 2005 to 2007, it started to increase again in 2008, and reached more than 70% in 2009, i.e. almost the same level as in 2005 (see Chart 44).

The latter pattern, however, holds true for all assets, as can also be seen in Chart 44 where the relative share of domestic use for *all* assets increased as from 2008. Credit institutions are the largest covered bond investor group, (holding approximately 40% of all covered bonds) There is also anecdotal evidence that the

Chart 43 Domestic use of covered bonds versus all assets



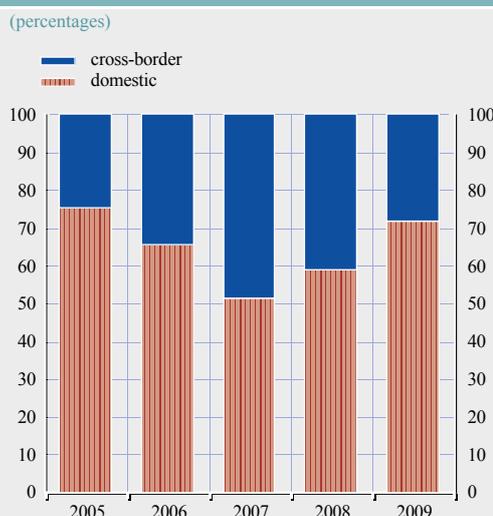
Source: ECB.

Note: The domestic use of covered bonds also includes covered bonds where the issuer and the counterparty using it belong to the same banking group, even if they are entities in two different countries.

existing fragmentation of national markets is a disincentive for certain international investors

³⁵ "Global Covered bond markets 2009-2010", Bank of America/Merrill Lynch, 2009, and "Tracing Investor Base Dynamics", Bank of America/Merrill Lynch, 2009.

Chart 44 Domestic versus cross-border use of covered bonds as collateral



Source: ECB.

Notes: The domestic use of covered bonds also includes covered bonds where the issuer and the counterparty using it belong to the same banking group, even if they are entities in two different countries. Data are based on snapshots taken at the end of year; for 2009, the snapshot was taken in October.

to enter the European covered bond market, even though this instrument might match their portfolio requirements rather well.

The existence of a considerable number of investor reports that are aimed at explaining the different national products and legislative regimes and provide detailed overviews of up to 40 programmes is in itself an indication that, from the investor's perspective, there is scope for greater clarity, simplicity and comparability in the world of covered bonds. As stated in one of the investor reports, "[i]nvestors' ability to fully assess the risks different covered bond products present ... will require deep understanding of the regulatory and legal framework."³⁶

Market-driven initiatives aimed at providing clarity with regard to the different frameworks, but also at other issues like increasing secondary market liquidity and transparency (of the cover pool and prices), have already been launched, most of them in the course of 2009. The following initiatives might serve as examples:

- The European Covered Bond Council (ECBC) provides a "Comparative Framework Tool" on its website³⁷ that allows all or selected features of covered bonds issued in different jurisdictions to be compared.
- The Covered Bond Investor Council (CBIC) was set up under the umbrella of the International Capital Market Association (ICMA) in early 2009. This investor-driven organisation regards itself as independent of both issuers and the market. The key objectives of the CBIC are the promotion of the long-term development of covered bonds as a highly secure product and covered bond market liquidity. The major issues addressed by the CBIC are transparency in the cover pool and the restoration of market liquidity.
- The European Covered Bond Dealers Association (ECBDA) is an affiliate of the Securities Industry and Financial Markets Association (SIFMA). It was set up in late 2008 and represents the interests of covered

bond dealers in European covered bond markets.

- Covered bond regulators from different European countries have, for the first time, started to meet on an informal basis in order, inter alia, to exchange views on legislation and explore possibilities for working towards greater convergence. The harmonisation of the regulation and supervision of covered bonds could have many benefits, such as maintaining a balance between protecting the interests of depositors and those of holders of covered bonds by placing limits on asset encumbrance.

In order to broaden the investor base, but also to strengthen covered bonds further as a separate and homogeneous asset class with clearly defined quality standards, there is indeed scope for further integration. The attempt of the ECBC to find a common definition can be seen as a step in the right direction, although it needs to be taken further. Moreover, market participants should prioritise and support the ECBC's recent project for the development of a common standard or definition of covered bonds. This should at least produce clearer definitions of certain minimum features, such as the quality and type of assets in the cover pool and the transparency of the cover pool, in order to facilitate investor due diligence.

³⁶ *The Covered Bond Book*, Bank of America/Merrill Lynch, 2009.

³⁷ See www.ecbc.eu.

C. HARMONISATION IN THE POST-TRADING SECTOR

The recent financial crisis has highlighted the crucial role played by post-trading infrastructures in financial market integration and stability. The Ecofin Council has repeatedly stated that a fragmented European post-trading sector is not compatible with the single market, calling on both the industry and public authorities to work towards harmonising cross-border securities processing. Such harmonisation would bring important benefits in terms of integration, cost efficiency and safety.

Because of its unique position as guardian of monetary and financial stability, the Eurosystem plays a key role in initiatives aiming to harmonise financial infrastructure services across the EU. Against this background, the development by the Eurosystem of TARGET2-Securities can in particular be expected to revolutionise cross-border securities settlement in Europe. Other complementary initiatives, like the removal of the Giovannini barriers, the implementation of the ESCB-CESR Recommendations and the Eurosystem initiatives in the field of collateral management will be equally important.

I INTRODUCTION

Historically, financial market infrastructures in Europe were created to meet national requirements and to manage securities denominated in national currencies. In many cases, there were only one or two dominant players at each stage of the value chain: typically one stock exchange for trading, possibly one central counterparty (CCP) for clearing and at least one central securities depository (CSD) for settlement.³⁸ Today, despite the introduction of the euro in 16 countries, the provision of post-trading services (clearing and settlement) remains fragmented along national lines. The lack of harmonisation in technical arrangements, market practices, regulatory requirements and legal frameworks has made

progress towards integration difficult and means that cross-border securities transactions have high costs and additional risks.

This situation is not aligned with the needs of a single currency and conflicts with the objective of a competitive and integrated European market for financial services. In order to ensure that the EU, and the euro area in particular, possesses an infrastructure that permits a safe and efficient flow of payments and securities, a number of public and private initiatives have been launched. Their common objective is to align post-trading systems rules and processes across EU Member States.

The aim of this Special Feature is to present the main harmonisation initiatives under way at the EU level, focusing on the contribution of the Eurosystem towards improving the functioning of the post-trading sector. Section 2 recalls the main bottlenecks created by market fragmentation and the key arguments in favour of strong involvement by public authorities in support of harmonisation. Section 3 then shows how the existing harmonisation initiatives complement each other. Finally, Section 4 looks at the future priorities of the Eurosystem in this area.

2 THE BENEFITS OF HARMONISATION

HARMONISATION AS A DRIVER OF EFFICIENCY AND LOWER COSTS

Today, clearing and settling cross-border transactions within the EU remains many times more expensive for investors than clearing and settling domestic transactions (see Table 2). Moreover, domestic transactions in the EU have remained far more expensive

³⁸ Typically, once a trade is completed on an exchange (when a buy instruction and a sell instruction are matched), the CCP or clearing mechanism calculates the obligations of each respective market participant, and the settlement mechanism of the CSD subsequently transfers the securities to the buyer's account against a cash payment to the seller (a process known as "delivery versus payment" or DVP).

Table 2 Average price per transaction of equities clearing and settlement services provided by European CSDs

(EUR)		
Year	Domestic	Cross-border
2006	0.35	2.33
2008	0.25	2.88

Source: *Monitoring prices, costs and volumes of trading and post-trading services*, Report prepared for the European Commission, Oxera, 2009.

than their equivalents in the United States, where trades are settled either by the Depository Trust and Clearing Corporation (DTCC) or the Fedwire-Securities system.³⁹

The lack of harmonisation across EU countries on a legal, fiscal and technical level implies that transacting across borders requires some form of intermediation, either through the establishment of links or more commonly through the use of custodians. The 2001 Giovannini report showed that a typical cross-border equity transaction can require the involvement of as many as 11 intermediaries (compared with only 5 for an equivalent domestic transaction) and a minimum of 14 instructions between parties. Such a high level of intermediation always comes at a cost. However, despite these costs, recent years have seen an increase in cross-border securities transactions and a rising proportion of members of trading platforms and CSDs originating from outside the country in which the infrastructures are domiciled.

To reduce costs, further integration and harmonisation are needed. Streamlining and automating post-trading systems to achieve so-called straight-through processing (STP) will require current infrastructures to harmonise the way in which they operate. Efficiency gains as a result of harmonisation are likely to be substantial because, like other utilities, post-trading infrastructures are characterised by positive network externalities and important economies of scale and scope.⁴⁰ The ultimate cost savings will not only benefit European investors⁴¹ but will also make Europe a more competitive and attractive financial marketplace vis-à-vis the rest of the world.

HARMONISATION AS A WAY TO FOSTER COMPETITION AND INTEGRATION

Harmonisation lowers entry barriers, giving new players increased opportunities to compete in the market. In addition, harmonisation reduces obstacles to cross-border consolidation and to the establishment of links between infrastructures, which also fosters competition. With close to 40 CSDs operating in the EU in 2009 (only some of which are represented in Chart 45), and with the five largest of these CSDs accounting for 81% of the total value of delivery instructions processed in the market, harmonisation is likely to trigger a process of consolidation and re-orientation. This may result in a decreasing overall number of infrastructures, although these will be increasingly likely to be servicing multiple markets.

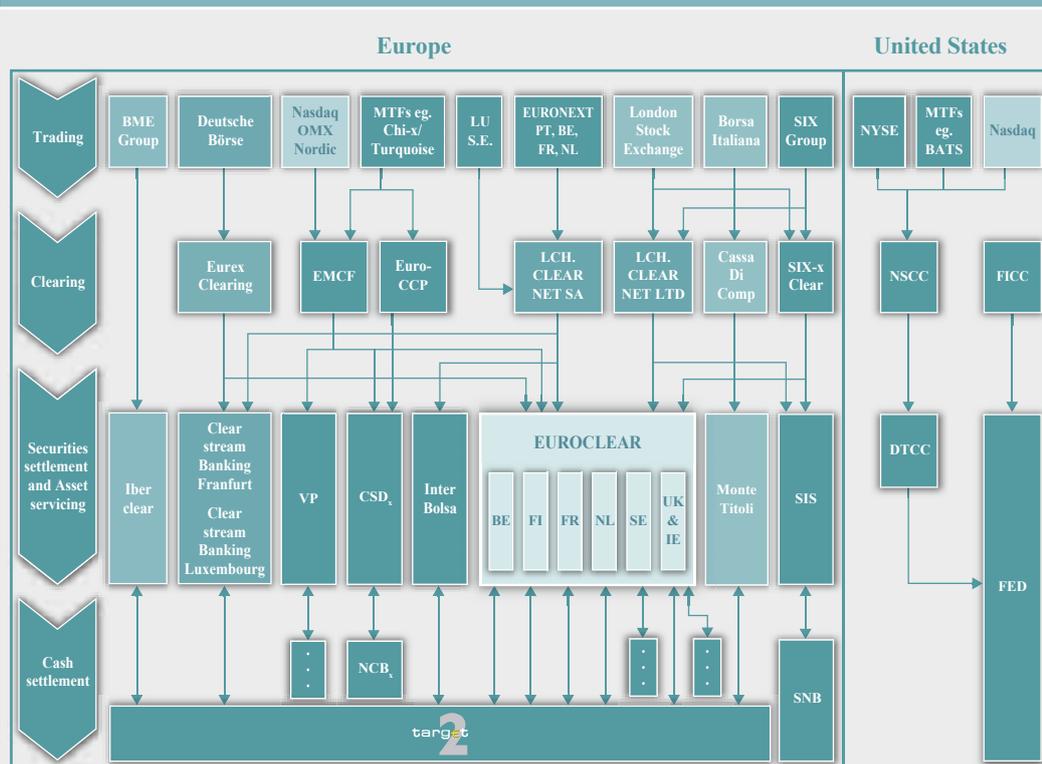
Harmonisation does not necessarily lead to consolidation into a single or few entities. By promoting more closely aligned standards and processes, harmonisation can also facilitate the coordination and interlinking of different systems. Interoperability agreements allow participants in different systems to exchange and settle payments or securities transactions across markets and country borders. For instance, a CSD can decide to establish a link with another CSD in order to make it possible for its participants to access the market covered by the other CSD. By reducing the cost of switching systems and by helping providers extend their service offerings to other markets, interoperability fosters competition. It creates more transparency and freedom of choice for investors by making post-trading services more compatible and comparable.

³⁹ See, for example, *The Direct Costs of Clearing and Settlement*, Nera Economic Consulting, 2004.

⁴⁰ See H. Schmiedel and A. Schönenberger, "Integration of securities market infrastructures in the euro area", *Occasional Paper Series*, No 33, ECB, 2005.

⁴¹ In its May 2008 Conclusions, the Ecofin Council explicitly requested that the potential cost savings at the infrastructure level be transmitted to retail investors.

Chart 45 Fragmentation among major European infrastructures and comparison with the United States



Source: ECB.

Note: This simplified overview of the securities landscape does not include all existing European infrastructures nor does it feature the horizontal links between infrastructures.

HARMONISATION AND FINANCIAL STABILITY

In addition to improving efficiency and integration, harmonisation can also help make the post-trading sector more sound and stable. In 2008, 322 million delivery instructions were processed by CSDs in the EU, with a total value of €831 trillion (see Charts 46 and 47). Despite a decrease of 9% in the value of transactions from 2007 to 2008, the overall trend has been one of steady growth in the last few years. The size of the business and the interdependence between securities settlement systems and payment systems are such that any problem affecting a major infrastructure could have serious repercussions for the stability of the financial system as a whole.⁴² The experience of the recent financial crisis has shown that an integrated infrastructure can contribute to enhanced stability. In particular, although

infrastructures have proved resilient during the crisis, the existence of non-harmonised infrastructure features has resulted in increased complexity and given rise to uncertainties, particularly for those players active in more than one market.

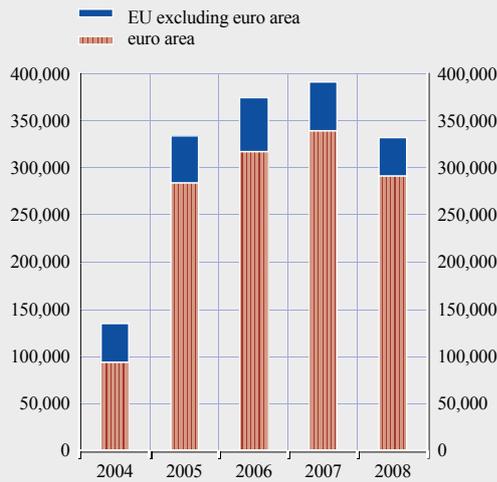
First, lack of harmonisation creates uncertainty about which rules should apply to particular trades.

Second, it creates complexity (and gives rise to related costs) for players active in more than one jurisdiction, which stems from the need to deal with different legal and operational issues for the same kind of trades. In particular, default rules (including provisions of European

⁴² "The interdependencies of payment and settlement systems", CPSS Publications, No 84, Committee on Payment and Settlement Systems, 2008.

Chart 46 Value of securities held by CSDs

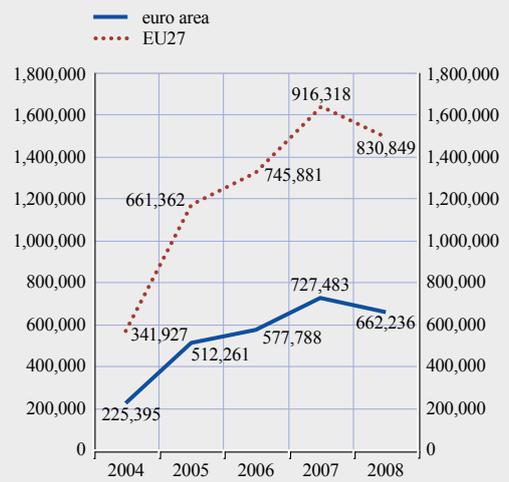
(EUR billions; end of period)



Source: ECB Statistics.

Chart 47 Value of securities transactions processed by CSDs

(delivery instructions; EUR billions)



Source: ECB Statistics.

Directives), are not consistently applied and enforced throughout the EU. Differences in default rules may relate to areas such as the sequencing of the procedural steps to activate default (i.e. the close-out rule), prices for collateral evaluation, decision-making mechanisms, different responsibilities and/or degrees of discretion for system operators or relevant authorities.

Third, additional problems may arise from different rules for credit and liquidity management, especially in emergency situations that trigger non-cooperative precautionary behaviour from market participants and give rise to increased difficulties in the liquidation of collateral.

THE ROLE OF THE EUROSISTEM IN PROMOTING HARMONISATION

In principle, it should be primarily the responsibility of the industry to ensure an appropriate degree of harmonisation of market practices and technical arrangements. However, coordination problems and vested interests may constitute hurdles to progress. For example, existing providers may have

an interest in maintaining the status quo, as inefficient processes and barriers to competition can translate into higher profits. Harmonisation efforts can also be held up by differences in legal, fiscal, and regulatory frameworks for post-trading activities. This is why harmonisation initiatives need the support of public authorities.

Safe and efficient clearing and settlement systems are of utmost importance to the Eurosystem in view of its statutory tasks in relation to the implementation of monetary policy, the smooth operation of payment systems and the preservation of financial stability. The post-trading market infrastructure is involved in the transmission of monetary policy impulses, supports the functioning of the money market, is used by counterparties in the delivery of collateral to the Eurosystem in credit operations, and in market participants' liquidity and collateral management. Due to their close interdependencies, problems in the handling of securities can quickly endanger the smooth operation of payment systems and hamper the orderly functioning of money, repo and financial markets.

In this context, the Eurosystem's involvement in the furthering of harmonisation and integration of the post-trading sector has to be understood in relation to its core tasks and mission. This involvement can take different forms: acting as a catalyst for change; oversight action; and/or operational involvement. Section 3 describes relevant EU harmonisation initiatives in the light of the Eurosystem's three main roles.

3 EXISTING INITIATIVES AT THE EU LEVEL

THE EUROSISTEM AS A CATALYST FOR CHANGE

The Eurosystem acts as a catalyst for change by supporting the market's efforts to harmonise post-trading practices and by collaborating with other relevant public authorities (EU institutions and national authorities) to address regulatory obstacles to efficient cross-border clearing and settlement.

Over the years, the ECB has developed a strong expertise in post-trading issues. Together with the other Eurosystem central banks, it has established close cooperation with the different industry stakeholder groups. A key forum for this cooperation is the Contact Group on Euro Securities Issues (COGESI). In this context, the Eurosystem has, in close interaction with the private sector, carried out and discussed surveys that have provided valuable information to support work on harmonisation. Examples of surveys include DVP settlement procedures, interoperability links between CCPs and settlement fails. This latter exercise highlighted the lack of available data on some aspects of fails management in Europe and the heterogeneity of the measures put in place by securities settlement systems to ensure timely settlement and to mitigate the impact of fails. Such fact-finding exercises are valuable in that they allow the Eurosystem and market players to gain knowledge about prevailing practices in the post-trading sector and to discuss ways to address shortcomings.

As regards the cooperation with authorities, one initiative in which the Eurosystem plays a catalyst role (together with the European Commission) is the removal of the "Giovannini barriers" to clearing and settlement. Following two ground-breaking reports by a group of financial market experts (called the Giovannini Group) set up by the Commission, 15 barriers to the efficient cross-border clearing and settlement of securities in Europe were identified, as well as the entities responsible for achieving harmonised solutions to address them.⁴³ Whereas some barriers are embedded in diverging market practices, and therefore require changes in the way market players do business ("private sector barriers"), nine barriers pertain to the fiscal and legal frameworks of Member States ("public barriers"). In order to support the efforts of the private sector to harmonise market practices, such as different rules for the processing of corporate actions and different message standards, an expert group, called CESAME, was put in place by the Commission in 2004. The ECB contributed to the work of both the Giovannini Group and CESAME, and continues to actively participate in CESAME2, the new group set up in the second half of 2008 to replace CESAME.

The ECB also contributed to the identification, inter alia, of the correct actions for removing Giovannini barriers 4 and 7 (covering intra-day finality and differences in operating hours respectively). Differences in operating hours (and also in cut-off times for sending instructions) constitute an obstacle to the cross-border transfer of securities between different EU settlement systems.⁴⁴ Harmonisation of operating hours among CSDs was therefore

⁴³ See "Cross-Border Clearing and Settlement Arrangements in the European Union", the Giovannini Group, Brussels, November 2001 and April 2003, available at <http://ec.europa.eu>.

⁴⁴ The ECB User Standards laid down in 1999 require all SSSs used for Eurosystem monetary policy and intraday credit operations to have operating days and hours consistent with those of TARGET.

identified as a crucial action to foster integration. Together with the European Central Securities Depositories Association (ECSDA) and the Securities Industry and Financial Markets Association (SIFMA), the ECB conducted a mapping exercise on the deadlines used in different European markets. In particular, this analysis showed that CSDs used different cut-off times for internal transactions and for cross-border transactions and that those for cross-border transactions differ between systems. As a consequence, the simple harmonisation of

domestic operating hours was not sufficient to remove Giovannini barriers 4 and 7.

In parallel to the work of CESAME, discussions on how to remove the legal and fiscal barriers to cross-border clearing and settlement took place within the framework of two expert groups composed mostly of officials from the Member States, namely the Legal Certainty Group (LCG), in which the ECB participated (see Box 4), and the Fiscal Compliance Group (FISCO) established by the European Commission.

Box 4

TOWARDS HARMONISATION OF SECURITIES LAW IN THE EU

The laws that apply to securities clearing and settlement and to the holding of securities are complex and vary from jurisdiction to jurisdiction. There is currently no single EU legal instrument regulating these activities per se. The Settlement Finality Directive (SFD)¹ and the Financial Collateral Directive (FCD)² both provide some protection against certain risks inherent in settlement and the use of securities as collateral, and their scope has recently been extended.³ The Directives also usefully provide that when securities are provided as collateral via book entry, for example to a system participant or central bank, it is the law of the place where the securities account is maintained that determines the rights of the collateral taker.⁴

The lack of a legal framework for rights in intermediated securities remains however the single most important legal obstacle to integrated clearing and settlement in the EU. In 2005 the Commission therefore established the Legal Certainty Group (LCG), a group of securities law experts, to advise on solutions to legal barriers related to the cross-border holding and settlement of securities. In August 2008, the LCG delivered its second advice,⁵ confirming the need for such a harmonised framework. It recommended that EU Member States should confer on account holders a legal position in respect of securities credited to their account, including the right to exercise and receive certain essential rights attached to the securities

1 Directive 98/26/EC of the European Parliament and of the Council of 19 May 1998 on settlement finality in payment and securities settlement systems, as amended (OJ L 166 of 11.06.1998, pp. 45–50).

2 Directive 2002/47/EC of the European Parliament and of the Council of 6 June 2002 on financial collateral arrangements, as amended (OJ L 168 of 27.06.2002, p. 43).

3 This was effected by Directive 2009/44/EC of the European Parliament and of the Council of 6 May 2009 amending Directive 98/26/EC on settlement finality in payment and securities settlement systems and Directive 2002/47/EC on financial collateral arrangements as regards linked systems and credit claims.

4 The so-called “PRIMA” rule – viz. Article 9(2) of Directive 98/26/EC of the European Parliament and of the Council of 19 May 1998 on settlement finality in payment and securities settlement systems, as amended, (OJ L 166, 11.6.1998, pp. 45–50), and, as regards certain proprietary matters, also Article 9 of Directive 2002/47/EC of the European Parliament and of the Council of 6 June 2002 on financial collateral arrangements, as amended (OJ L 168, 27.6.2002, p. 43).

5 “Second Advice to the European Commission of August 2008 on solutions to legal barriers related to post trading in the EU”, LCG, 2008.

(e.g. voting rights, payments), to instruct the account provider to dispose of the securities and the right to hold them in a different manner. Certain methods of acquiring and disposing of book-entry securities, namely crediting and debiting accounts and earmarking should also be harmonised and should prevail over other methods. The group's other recommendations concern the duties of intermediaries, differing rules on the cross-border processing of corporate actions and the dismantling of restrictions on the location of securities.

Building on this work the Commission announced in mid-2009 that it would adopt a proposal for an EU directive on securities law by 2010 and issued a consultation document⁶ inviting stakeholders to comment. October 2009 also saw agreement on the draft UNIDROIT convention on rights in intermediated securities,⁷ an encouraging development which should give impetus to the Commission's initiative.

⁶ Consultation document of the Services of the DG Internal Market and Services, G2/PP D (2009), 16 April 2009.

⁷ Viz. the second session of the final diplomatic conference on the draft UNIDROIT Convention on substantive rules regarding intermediated securities, Geneva, 5-9 October 2009.

In November 2006, the European Commission launched the Code of Conduct on Clearing and Settlement. The Code is a self-regulatory initiative which does not aim at harmonisation per se, but which is likely to provide momentum in support of harmonisation efforts. Signed by all major European Exchanges, CCPs and CSDs, it aims to create the conditions that will facilitate more competition between infrastructures.⁴⁵ Based on three building blocks, it contains common guidelines for infrastructures in terms of price transparency, interoperability, and service unbundling. The ECB actively contributes to the work of the expert group set up to assess the progress made in implementing the Code.⁴⁶

The principles of access and interoperability in particular, by encouraging infrastructures to seek linkages with one another, are likely to contribute to harmonising the processes used by Exchanges, CCPs and CSDs to interact with other infrastructures and with their users. In 2007, the ESCB conducted a survey on existing link arrangements between CCPs, the results of which offered a number of interesting insights. In particular, the survey highlighted three main categories of arrangements: cross-participation, cross-margining and mergers between CCPs.⁴⁷ Overall, it found that the limited degree of integration in CCP clearing and the difficulty

of establishing cross-margining agreements in Europe (as opposed to the United States) were partly due to the lack of a harmonised EU regulatory framework. This work has proved very helpful and the main findings were confirmed later when the discussions on CCP interoperability triggered by the Code of Conduct started. Since the Code entered into force the number of link requests between infrastructures has substantially increased. However, only a limited number of links have been effectively established, partly for commercial reasons (since competitive clearing introduces competition between the linked CCPs) and in part due to a lack of harmonisation in CCP risk management practices.

In addition, in the context of the Code of Conduct, the ECB has been working together with securities infrastructures and the Commission to improve price transparency and comparability, encouraging among other things the development of best practice tools

⁴⁵ The Code of Conduct is available at <http://ec.europa.eu>.

⁴⁶ The Monitoring Group comprises representatives of the Commission, the ECB and CESR. Representatives of market infrastructures and their users are also invited to the meetings.

⁴⁷ See *The role of central counterparties: issues related to central counterparty clearing; ECB-Fed Chicago conference, 3-4 April 2006*, ECB and Federal Reserve Bank of Chicago, July 2007.

such as online price simulators. In particular, the ECB provided some monitoring and analytical work on the “Conversion Table” developed by ECSDA to provide a common grid for understanding the price lists of CSDs, despite the fact that each of them tends to use different terminology and pricing models. Furthermore, in 2009 the ECB carried out two fact-finding studies on price examples and price simulators, which concluded that, while substantial progress had been made on price transparency, real comparability remains difficult to achieve in the absence of a harmonised definition of services.

THE EUROSISTEM AND ITS OVERSIGHT ACTIVITIES

The Eurosystem and the other EU central banks have worked with securities regulators to harmonise regulatory and oversight standards in the post-trading sector. Indeed, a convergence of post-trading processes is only possible if allowed by supervisors. Each market infrastructure is supervised/overseen by the authorities of the Member State in which it is incorporated and there is no common EU framework for the supervision and oversight of CCPs and CSDs. In order to fill this gap and promote a common EU supervisory approach, the ESCB and the CESR (the Committee of European Securities Regulators) have published two sets of recommendations for clearing and settlement arrangements in Europe: one for securities settlement systems, and one for CCPs. The recommendations, based on the recommendations of the CPSS/IOSCO and published on 23 June 2009, mainly focus on risk issues and contain minimum safety requirements that CCPs, CSDs, and ICSDs⁴⁸ need to comply with. Although the main aim of the ESCB-CESR Recommendations is to ensure the resilience of the post-trading securities and derivatives infrastructure, their implementation would foster harmonisation in two ways.

First, they create the conditions to ensure that oversight of post-trading infrastructures takes place in a harmonised way. More specifically, they aim to reduce the differences in the existing regulatory frameworks across Europe and hence

the risk of regulatory arbitrage, as well as regulatory impediments to the creation of links and interoperability. A common assessment methodology has been developed in parallel to facilitate a common and consistent application of the Recommendations in practice.

Second, although the Recommendations are addressed to public authorities, they also affect infrastructures. These are encouraged to take the Recommendations into account while operating their businesses. By complying with the Recommendations, post-trading infrastructures can be expected to undergo a process of convergence, not only in terms of risk management standards, but also in terms of efficiency, transparency and governance.

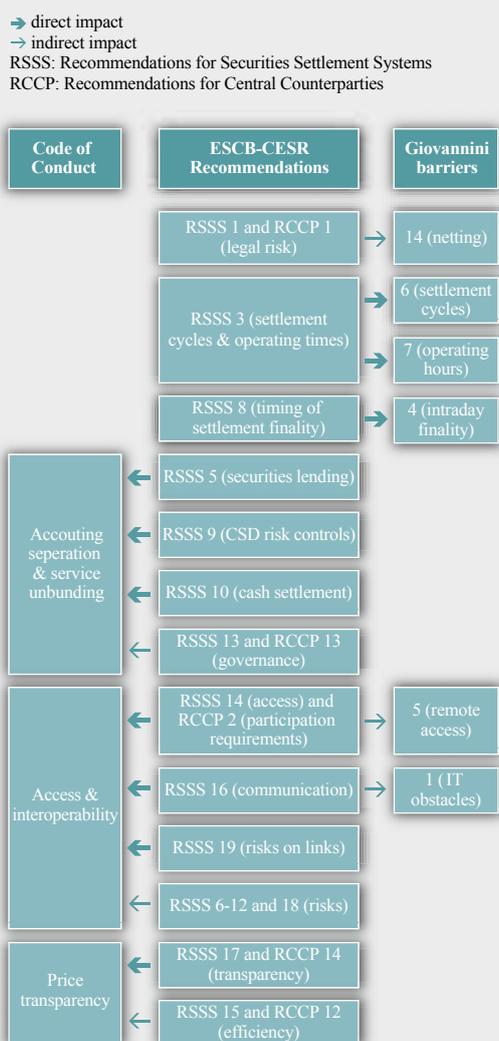
The implementation of the ESCB-CESR Recommendations would contribute to removing a number of Giovannini barriers and, in particular, would foster the harmonisation of operating hours, finality rules and settlement cycles. The ESCB-CESR Recommendations will also facilitate the implementation of the Code of Conduct (see Chart 48).

THE EUROSISTEM AS OPERATOR

While its primary purpose as operator is to provide services necessary for its central banking tasks, the Eurosystem seeks to provide its services in such a way that they support integration and foster harmonisation. For instance, the Eurosystem provides a uniform service and pricing structure for the settlement of large-value payments in its second generation TARGET2 system, which is operated on a single shared platform. It also plans to operate two new platforms: TARGET2-Securities (T2S) for settling European securities transactions in central bank money; and CCBM2 for managing collateral for central bank operations.

⁴⁸ The two international central securities depositories (ICSDs) in the European Union are Euroclear Bank (based in Belgium) and Clearstream Banking Luxembourg. They were initially created to settle Eurobonds and now offer a wide variety of services for transactions in international and domestic securities.

Chart 48 The ESCB-CESR Recommendations, the Code of Conduct and the Giovannini barriers



Source: ECB.

T2S aims to overcome the fragmentation of settlement in Europe by creating a single technical platform for the settlement of European securities trades. T2S will provide harmonised and commoditised DVP settlement in central bank money, eliminating the distinction between domestic and cross-border securities transactions within the European market.

28 CSDs from 26 European countries have signed the T2S Memorandum of Understanding

with the Eurosystem. This means that a large majority of European CSDs intend to join the T2S initiative, thereby supporting a harmonised solution for the processing of securities settlement transactions. Not only does T2S attract CSDs beyond the euro area, but its multi-currency dimension also means that it will support the harmonisation of post-trading processes throughout Europe. Indeed, several non-euro area national central banks have already confirmed their interest in bringing their currency into T2S.⁴⁹ The implementation of T2S will certainly be the most significant milestone in the harmonisation of European securities settlement practices.

Although T2S will not address all the existing barriers to cross-border securities processing in Europe, it will *de facto* create a domestic market for the settlement of European securities thanks to a single platform and harmonised services and prices for all participating CSDs. The impact of T2S on harmonisation will be both direct and indirect. Direct, because the development of the platform itself will force harmonisation to take place in those areas related to the core settlement process, and indirect, because T2S can be expected to trigger a “virtuous cycle” whereby the harmonisation of core processes will create both pressure and incentives to harmonise further aspects such as safekeeping and custody.

In terms of its direct impact, T2S will bring about harmonisation by replacing current divergent national practices with a single solution. A common settlement platform for European CSDs has the advantage that it involves going from standards agreed on paper to the definition of common processes which will become market practice. Building T2S forces decisions to be taken on the existing options to harmonise securities settlement, such as the adoption of a common interface, common message formats, a common set of rules for intra-day settlement

⁴⁹ The CSDs and the central banks of Denmark, Lithuania, Norway and Sweden have confirmed their interest in providing for the settlement of their national currencies in T2S, in addition to settlement in euro.

finality and a harmonised daily timetable and calendar. In the process, T2S will therefore contribute to removing in one stroke many of the private sector Giovannini barriers (see Table 3).

For example, T2S will contribute to eliminating Giovannini barrier 1 as it will provide a single IT platform with common interfaces and a single messaging protocol (known as ISO 20022) covering instructing, matching, settlement, querying and reporting across all connected markets. This single interface will benefit all participants, whether they connect directly to

T2S or via their CSD. Moreover, by introducing a single operational schedule and calendar for all connected markets (including a single start and end-of-day, a common night-time settlement window and a single calendar per T2S-eligible currency), T2S will not allow different national cut-off times and will therefore be instrumental in removing Giovannini barrier 7. Besides, by extending a single harmonised settlement model, comprising RTGS DVP in central bank money, to all domestic and cross-border transactions, T2S will significantly help remove the remaining technical obstacles to interoperability, connectivity and intraday finality across different markets (Giovannini barriers 2, 4 and 5). Lastly, the lifecycle management and matching functionality in T2S will provide completely harmonised services in the area of settlement instruction management (Giovannini barriers 2 and 5).

T2S will not only force harmonisation in many crucial areas, it will also increasingly act as a catalyst for further harmonisation. This is because T2S creates incentives for both Member States and market participants to harmonise current national practices and adopt European standards. For instance, an important feature of T2S is that the platform will provide a “lean” settlement process which will not support existing national specificities. Whereas CSDs are free to offer services tailored to the specificities of a local market at their own cost after T2S is operational, this extra cost creates incentives for harmonisation. Furthermore, T2S will allow intermediaries to harmonise their back-office processes. Indeed, banks and other CSD users will have the possibility of routing their settlement instructions directly to the T2S platform rather than via a CSD, which will enable them to rationalise their back-offices and to centralise the processing of securities settlement.

In general, it is expected that T2S will have an indirect impact on Giovannini barriers other than those highlighted in Table 3. The removal of these other barriers is necessary for T2S to deliver its full potential in terms of cost savings.

Table 3 TARGET2-Securities and the 15 Giovannini barriers

Giovannini barrier	Will T2S contribute to removing it?
1. National differences in information technology and interfaces	Yes
2. National clearing and settlement restrictions that require the use of multiple systems	Yes
3. Differences in national rules relating to corporate actions, beneficial ownership and custody	Yes
4. Absence of intra-day settlement finality	Yes
5. Practical impediments to remote access to national clearing and settlement systems	Yes
6. National differences in settlement periods	No
7. National differences in operating hours/settlement deadlines	Yes
8. National differences in securities issuance practice	No
9. National restrictions on the location of securities	No
11. Domestic withholding tax regulations serving to disadvantage foreign intermediaries	No
12. Transaction taxes collected through a functionality integrated into a local settlement system	No
13. The absence of an EU-wide framework for the treatment of interests in securities	No
14. National differences in the legal treatment of bilateral netting for financial transactions	No
15. Uneven application of national conflict of law rules	No

Source: ECB.

carried out by the ECB in 2007 and 2008 highlighted the need to harmonise further areas in order to fully exploit the efficiency gain opportunities of the project. Following two ad hoc meetings between the Eurosystem and market participants in March and May 2008,⁵¹ a list of issues for harmonisation was produced which identifies three areas of harmonisation for CCBM2: a) harmonisation issues already included in the CCBM2 user requirements; b) other harmonisation issues directly related to the CCBM2, but not part of the CCBM2 user requirements (aspects which, if harmonised, would further enhance CCBM2 and allow the platform to yield even more efficiencies, such as auto-collateralisation and triparty services); and c) issues involving wider harmonisation of the post-trading environment, which are also beneficial for CCBM2.

4 THE WAY FORWARD

The Eurosystem will continue to support harmonisation as a powerful means to achieve its long-term vision of a European “domestic” market for payments and securities settlement. In the field of LVPSs, the distinction between national and cross-border transactions in euro has already been largely abolished.⁵² In contrast, the process of European integration is only beginning in relation to securities infrastructures. With T2S, the Eurosystem will provide one of the most important tools for delivering the vision of a harmonised and integrated post-trading system. However, T2S will not by itself achieve full harmonisation. Supporting other complementary initiatives will therefore also remain a priority.

Against this background, the ECB and EU central banks are heavily involved in other complementary initiatives to reap further benefits from Europe-wide harmonisation.

First, the Eurosystem works hand in hand with other public authorities to ensure that the regulatory and supervisory framework for

post-trading supports the goals of harmonisation, efficiency and safety. Together with CESR, the ESCB will now endeavour, as a matter of priority, to ensure that the ESCB-CESR Recommendations are consistently applied throughout Europe. Although the Recommendations constitute an important step towards greater convergence of the supervisory and oversight approaches of Member States, many national differences persist which make it difficult to perform cross-country comparisons of the risk reviews carried out. Since the Recommendations are non-binding, it is essential that the ESCB and the CESR jointly monitor their consistent implementation.

The close cooperation with the European Commission, which has a leading role in a number of key initiatives, such as the Code of Conduct and CESAME2, will be continued. Through its contribution to the work of both CESAME2 and the Monitoring Group, the ECB can bring its own perspective to the debate, stressing the benefits of harmonisation for financial stability and the smooth interaction between securities settlement and payment systems. In general, the Eurosystem supports the priorities identified in the CESAME report⁵³ and recognises that, while some barriers have been largely removed (e.g. the absence of a harmonised process for allocating ISIN codes to new securities), other important barriers remain and require urgent action (e.g. differences in settlement periods and the processing of corporate actions).

51 The minutes of these meetings are available on the ECB’s website at <http://www.ecb.europa.eu>

52 With the creation of the TARGET system (initially as a first generation version in 1999, which was subsequently replaced with a second generation version) and EURO1, users of LVPSs now benefit from a single, harmonised set of tools, services and procedures to transfer euro payments within and across national borders under the same conditions. In the case of retail payments, the Single Euro Payments Area (SEPA) aims to achieve the same objective by replacing the current fragmentation with a truly domestic market for euro payments.

53 See “Solving the Industry Giovannini Barriers to post-trading within the EU”, CESAME, 2008.

In addition, the Eurosystem regularly publishes opinions on draft securities legislation prepared by the Commission or the Member States. In June 2009, it provided input to the public consultation on harmonising EU securities law to provide legal certainty for securities holdings and dispositions (see Box 4).

Secondly, the Eurosystem deems it essential to continue to support private sector initiatives in the field of harmonisation, whether or not related to T2S. Such cooperation with the industry is proving successful in ensuring that progress is made towards harmonisation. Overall, it is clear that the various EU post-trading initiatives to which the Eurosystem has contributed, such as the Code of Conduct and CESAME2, have together contributed to create a new momentum in the market, notably by instilling more competition between what used to be national monopolies.

In particular, there are some encouraging signs that market infrastructures, whether CCPs or CSDs, are adapting their practices, and even their business models, to take account of the drive towards more harmonisation. In this respect, two major private initiatives are worth mentioning. In 2009, the Euroclear Group completed the Euroclear Settlement of Euronext-zone Securities (ESES) project, which fully integrates clearing and settlement in France, Belgium and the Netherlands. Users now need hold only one account at one of the three CSDs to access securities in the other CSDs of the group. Another initiative, involving eight European CSDs and two non-European CSDs⁵⁴ is the joint venture called “Link Up Markets” launched in March 2009. Unlike the Euroclear initiative, Link Up Markets does not aim to create a single consolidated settlement engine, but rather focuses on the provision of more efficient cross-border settlement and custody services between legally independent CSDs, through an enhanced exchange of messages. Although the two initiatives reflect alternative approaches, they are likely to pave the way for more harmonisation in the future.

In the field of collateral management, in addition to implementing CCBM2, the Eurosystem will support the market in establishing a secondary market for credit claims (bank loans). The objective is to increase the availability of collateral and make the market more efficient, through more harmonised legal and technical processes for the use of credit claims as collateral. Although credit claims are not securities, it is expected that the technical infrastructure to be developed around them (e.g. settlement platforms) will operate in a similar way to post-trading infrastructures for securities. Achieving synergies between this project, CCBM2, T2S and other related projects will therefore be essential in the future.

All in all, harmonisation is an ongoing process which requires the involvement and close collaboration of public and private actors alike. The fragmented nature of post-trading arrangements means that Europe is not as competitive as it could be. Action is required in a number of complex areas, including market practices, technical arrangements, legal frameworks, fiscal procedures, risk management standards and regulatory conditions. Because of its unique responsibilities, the Eurosystem is well placed to support harmonisation initiatives, whether in its capacity as operator, overseer or catalyst. A more integrated, efficient and resilient EU post-trading sector will not only bring benefits to the users of securities infrastructures. In the long term, it will also support the Europe 2020 strategy for growth and jobs, contributing to the economic well-being of European citizens.

⁵⁴ As of 2 March 2010, Link Up Markets had ten members: Clearstream Banking (Germany), the Cyprus Stock Exchange, the Hellenic Exchange (Greece), IBERCLEAR (Spain), OeKB (Austria), SIX SIS (Switzerland), VP Securities (Denmark), VPS Norway, Strate (South Africa) and MCDR (Egypt).

D. STABILITY IMPLICATIONS OF FINANCIAL MARKET INTEGRATION AND DEVELOPMENT

This Special Feature evaluates research results on the financial stability implications of financial market integration and development, with special focus on recent trends in the financial structures that have played a role in the context of the crisis.

Integrated and developed financial systems are highly efficient in allocating financial resources, but are also exposed to risks of instability. The crisis has shown, in particular, that an extensive and under-regulated combination of securitisation and banking, together with significant complexity in the design and valuation of securities, tends to erode bank credit monitoring and undermine market transparency, fuelling systemic risk. A high degree of geographical and sectoral interconnection of banking and financial markets in such conditions compounds the problem by spreading contagion across institutions and markets. Moreover, certain regulatory and institutional features, like marking-to-market accounting and the predominant use of over-the-counter transactions in credit derivative markets, can also contribute to instability under stressed market conditions.

An intense debate is under way on how to enhance the resilience of financial systems. Increased transparency, reduced complexity of financial instruments, macro-prudential supervision aimed at a timely detection of prospective imbalances and assessment of cross-market contagion, as well as coordination (and when necessary, harmonisation) of regulatory and supervisory policies across national borders are some of the ways suggested in academic and policy discussions to retain the benefits of integration and development and – at the same time – contain the financial stability risks associated with them.

I INTRODUCTION

The years preceding the crisis were characterised by rapid growth and structural transformation of the global financial system. Spurred, *inter alia*, by a high appetite for – and benign

perceptions of – risk among market participants, as well as favourable liquidity conditions, a general and mutually reinforcing process of financial integration, deepening and innovation was set in motion. This process increased the breadth, flexibility and efficiency of the financial system, but also contributed to the build-up of vulnerabilities that have exacerbated the recent financial crisis.

The crisis demonstrates that a process tending towards a more closely integrated and more highly developed financial system does not necessarily improve its performance in terms of *both* “efficiency” and “stability”. Financial integration and development⁵⁵ can raise the efficiency of a financial system – and thereby productivity and growth in the economy as a whole – if accompanied by adequate legal and regulatory frameworks, corporate governance, market infrastructures, etc.⁵⁶ A more open and innovative financial sector offers better opportunities for risk diversification and facilitates access to funding and market liquidity which, in turn, tend to improve the shock-absorbing capacity of the system under normal circumstances.

However, some recent advances and trends in the global financial system have also impacted adversely on incentive structures and information asymmetries within the system, as we shall discuss. This experience shows that the impact of integration and development on stability needs careful qualification. Certain forms of

55 Financial integration and financial development are distinct, but interrelated notions. 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. However, frictions in financial markets can persist even after financial integration has been completed. 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, multiplies the possibilities for agents to engage in financial transactions through (explicit or implicit) contracts, reduces transaction costs and increases competition. See P. Hartmann, F. Heider, E. Papaioannou, and M. Lo Duca, “The role of financial markets and innovation in productivity and growth in Europe”, *Occasional Paper Series*, No 72, ECB, 2007.

56 See “Special Feature A – Financial development: concept and measures”, *Financial Integration in Europe*, ECB, April 2009.

financial innovation may increase systemic risk, owing to perverse incentives and a stronger inter-connectivity between financial markets and financial institutions, raising the scope for imbalances and contagion, as well as magnifying the potential damage from small probability events.⁵⁷ The challenge of gauging the stability impact of financial innovation ex ante is further complicated by the fact that large financial crises are rather rare and idiosyncratic events, rendering empirical tests of relevant hypotheses particularly difficult.

Against this background, this Special Feature summarises the academic literature on the financial stability implications of certain phenomena that characterised financial developments prior to the current crisis. Section 2 addresses the relationship between financial openness (including foreign bank ownership) and cross-market integration (in the money market, including the impact of hedge funds and private equity firms), on the one hand, and financial stability on the other. Section 3 analyses the financial stability implications of certain features of modern financial systems, namely securitisation, financial complexity, mark-to-market accounting and financial derivatives. Although financial integration and development are distinct concepts, in practice, the issues addressed in the two sections are also interrelated, sometimes blurring the demarcation lines between them. For example, securitisation was a vehicle of increased international financial integration and risk-sharing prior to the crisis, which integrated mortgages with other market segments. Moreover, certain features of securitisation made the relationships between ultimate borrowers and lenders more complex, less transparent and prone to incentive problems. Section 4 derives a few conclusions that emerge from the literature.

2 THE RELATIONSHIP BETWEEN FINANCIAL INTEGRATION AND FINANCIAL STABILITY

International financial integration can normally be assumed to be beneficial. Access to world capital markets expands investors' opportunities

for portfolio diversification, enables higher risk-adjusted rates of return, improves efficiency, strengthens market discipline and enhances risk-sharing. At the same time, economists have also recognised the risk of volatility and abrupt reversals of capital flows, contagion and cross-border transmission of financial shocks that are normally associated with higher integration.⁵⁸ The current crisis has also brought some stability risks of integrated financial systems to the fore, and highlighted a certain "disintegrating" potential of widespread financial turmoil. Against this background, this section reviews current thought and analyses regarding the benefits and costs of financial integration with respect to financial stability, as well as the literature on various regulatory measures that have been proposed in order to reduce the costs without diminishing the benefits.

FINANCIAL GLOBALISATION AND FINANCIAL OPENNESS

The two decades before the onset of the present crisis were characterised by rapid globalisation of financial markets and services. While different markets were integrating at a different speed even within the same economic zone (for example, money and bond markets in the euro area became almost perfectly integrated while retail banking markets were much less so), financial globalisation as a whole was moving at an unprecedented speed. For example, one commonly used measure of an individual country's degree of financial integration (gross external liabilities) – increased from about 20% of GDP in 1970 to well over 200% of GDP in 2007 for high-income countries.⁵⁹ Since such

57 See *Financial Integration in Europe*, ECB, April 2009, p. 7, and R. Rajan, "Has Finance Made the World Riskier?", *European Financial Management*, Vol. 12, No 4, 2006, pp. 499-533.

58 See F. Fecht, H. Grüner and P. Hartmann (2009), "Financial Globalization and Stability", in D. Evanoff, D. Hoelscher, and G. Kaufman (eds.), *Globalization and Systemic Risk*, World Scientific Publishers, 2009, pp. 53-84, for a discussion of efficiency benefits and stability risks.

59 A. Faria, P. Lane, P. Mauro, and G.M. Milesi-Ferretti, "The Shifting Composition of External Liabilities", *Journal of the European Economic Association*, Vol. 5, No 2-3, 2007, pp. 480-490.

rapid financial globalisation has been followed by such a severe global crisis, the question of the link between financial openness and stability has become even more relevant.

Financial integration provides access to a wider range of assets and therefore helps improve risk-sharing. It improves the liquidity of markets and strengthens their resilience to shocks. It also enhances information and competitiveness in various markets, reducing the likelihood of mis-pricing of financial instruments and strengthening market discipline. The latter effect should in principle be associated with more robust and healthy financial institutions in the long term.⁶⁰

In addition, recent research has looked at one particular channel *via* which financial integration affects stability, namely, the channel of optimal diversification. Evidence from a large 40-year panel of OECD countries suggests that financial integration tends to accelerate the economy's convergence towards a diversification benchmark based on the idea of allocative efficiency. By doing so, financial integration reduces economic volatility and dampens the effect of financial instability. However, the evidence also implies that there might be a point beyond which a country becomes "over-integrated", in the sense that further integration is associated with movement away from rather than towards optimal diversification, thus increasing the likelihood of recessions and thereby worsening efficiency and stability.⁶¹

A high degree of openness and integration may also be associated with higher cross-border contagion risk. Its role in enhancing competition can furthermore increase incentives for risk-taking in the short run and intensify the search for yield, especially in a low interest rate environment. Financial integration could also be conducive to a high degree of volatility in capital movements in the shape of large reversals of short-term flows (although arguably, this effect is more relevant to smaller economies).⁶²

Stability risks may also arise if the driving forces underlying stronger international financial integration reflect economic imbalances. It has been argued⁶³ that the pre-crisis boom in US real estate and securitisation markets reflected high foreign demand for safe US assets resulting from "excess world savings" in the context of persistent global imbalances. According to this interpretation, foreign asset demand not only pushes down the domestic (US) risk-free interest rate but also compresses the risk premia on risky assets. The low cost of financing, in turn, fosters an increase in the level of leverage of the domestic financial sector which exacerbates systemic risk. Leverage is also enhanced by the introduction of securitised products, which are perceived as close substitutes for riskless assets, in order to meet the high foreign demand for such assets.

Prior to the current crisis, there had been no evidence that more open developed countries were likely to experience more costly crises.⁶⁴ In fact, more financially open countries seem not to have experienced a higher cost, even in the context of this crisis, barring a few small and very open economies like Iceland and Ireland. Nevertheless, the severity and length of the crisis has highlighted the increasing importance of contagion risks in global financial markets today. In particular, cross-border financial integration may produce financial stability risks in the presence of continued national autonomy in the financial policy sphere (regulation, supervision and stability), and the supervisory framework needs to adjust to this evolution. This is true both

60 P.-R. Agenor, "Benefits and Costs of International Financial Integration: Theory and facts", *Policy Research Working Paper Series*, No 2699, World Bank, 2001.

61 See S. Manganelli and A. Popov, "Finance, Efficiency, and Recessions", mimeo, ECB, 2009.

62 R. Chang and A. Velasco, "Banks, Debt Maturity, and Financial Crises", *Journal of International Economics*, Vol. 51, No 1, 2000, pp. 169-194.

63 R. J. Caballero and A. Krishnamurthy, "Global Imbalances and Financial Fragility", *American Economic Review*, Vol. 99(2), May 2009, pp. 584-588.

64 R. Ferguson, P. Hartmann and F. Panetta, "International Financial Stability", *Geneva Report on the World Economy*, No 9, 2007.

at the European and at the global level. Thus, it is important that the “internationalisation” of financial policy keeps step with the speed at which international financial integration progresses.⁶⁵ In addition, financial supervision should pay particular attention to assessing in real time not just the build-up of within-market risk, but also cross-market contagion and linkages between large and complex financial institutions. By providing the basis for a strong European macro-prudential supervisory framework, the de Larosière Report,⁶⁶ the subsequent Ecofin Council proposal⁶⁷ and the European Commission’s legislative proposals constitute vital steps in that direction in Europe.⁶⁸

FOREIGN BANK PENETRATION

One of the main developments in the European banking landscape in the past decade has been the increasing importance of cross-border banking. Foreign banks account for the ownership of over a quarter of domestic bank sector assets in the euro area, and for almost three quarters of domestic bank sector assets in the ten EU Member States that joined in 2004 and 2007 (with highs of 99% in Estonia and Slovakia).⁶⁹ Naturally, this development raises the question of the link between foreign bank ownership and financial stability. Increasing integration offers the prospect of important gains in terms of efficiency and diversification, but it also creates potential systemic risks. There are a number of reasons why foreign bank ownership can be expected to contribute to stability. For one, foreign bank penetration may contribute to a reduced volatility of capital flows if in periods of instability depositors shift their funds to foreign institutions that are perceived to be sounder than domestically owned banks, rather than transferring assets abroad or engaging in capital flight.⁷⁰ Second, foreign banks that enter emerging markets tend to allocate capital to the more efficient firms, alleviating asymmetric information problems and thus reducing the probability of financial crises and contagion.⁷¹

However, there are also arguments to explain why increasing penetration by foreign banks can

be associated with instability, and this possibility is not limited to the experience of the developing world. For example, foreign banks may exploit governments’ fear of many banks failing at the same time and select portfolios that resemble those of large domestic financial firms, thereby increasing the probability of a crisis.⁷² Second, there may be important moral hazard problems involved. In particular, inefficient cross-border banks may be engaging in riskier investment strategies than inefficient domestic banks in a high-growth environment where they lack information to price investment opportunities. Evidence from European banks indeed suggests that inefficient cross-border banks are likely to be riskier, and that loan growth has a clear effect on banks’ risk and inefficiency.⁷³ A third risk associated with cross-border banking stems from the possibility that a shock to a cross-border bank’s capital will result in a reduction in lending to firms and consumers in locations far from the origins of the shock. Theory suggests that banks routinely respond to capital losses stemming from asset-price fluctuations by curtailing new lending, which leads the real sector to deteriorate and increases the losses on the banks’ portfolios.⁷⁴ The behaviour of lenders in the early phase of the crisis suggests that this financial accelerator

65 See I. Angeloni, “Testing times for global financial governance”, *Bruegel Essay*, 2008, and D. Schoenmaker, “The Trilemma of Financial Stability”, mimeo, University of Amsterdam, 2009.

66 “The High Level Group on Financial Supervision in the EU Report”, Brussels, 25 February 2009.

67 “Council Conclusions on Strengthening EU Financial Supervision”, Luxembourg, 9 June 2009.

68 See Special Feature A for more information on the new EU supervisory architecture.

69 See *Structural indicators for the EU banking sector*, ECB, January 2010, and *2009 Transition Report: Transition in crisis*, EBRD, November 2009.

70 G. Caprio and P. Honohan, “Restoring Banking Stability: Beyond Supervisory Capital Requirements”, *Journal of Economic Perspectives*, Vol. 13, 1999, pp. 43-64.

71 See M. Giannetti and S. Ongena, “Financial Integration and Firm Performance: Evidence from Foreign Bank Entry in Emerging Markets”, *Review of Finance*, Vol. 13, 2009, pp. 181-223.

72 V. Acharya, “A Theory of Systemic Risk and Design of Prudential Bank Regulation”, *Journal of Financial Stability*, Vol. 5, 2009, pp. 224-255.

73 F. Fiordelisi, D. Marques and P. Molyneux, “Efficiency and risk-taking in European banking”, mimeo, ECB, 2009.

74 G. von Peter, “Asset Prices and Banking Distress: A Macroeconomic Approach”, *Journal of Financial Stability*, Vol. 5, 2009, pp. 298-319.

effect may be larger when foreign-owned banks are involved, as they prefer to shrink their portfolio abroad in response to asset shocks rather than damage relationships with domestic customers (although this behaviour may depend on the structure of the group and the group-level funding management policies).⁷⁵ Finally, evidence from the ten EU Member States that joined in 2004 and 2007 suggests that there was an increase in pre-crisis credit risk stemming from the rapid increase in the importance of foreign banks, through channels like the readiness to provide foreign currency consumer and mortgage loans and the tendency to underestimate the build-up in credit risk arising from rapid credit growth in emerging economies.⁷⁶

The pros and cons of foreign ownership in the banking sector and increased cross-border exposure pose the obvious question of the role of regulation in curtailing the cons without diminishing the pros. In normal market conditions, bank deregulation has been suggested as a tool to improve loan quality and lower credit risk. Evidence from European bank balance-sheet data implies that screening intensified and that loan quality subsequently improved in the wake of the Second Banking Directive.⁷⁷ However, theoretical studies have suggested that different regulatory steps should be taken in the wake of a financial crisis, such as prompt closure of insolvent institutions, prompt identification of claims and assignment of losses and prompt re-capitalisation and re-privatisation of failed institutions.⁷⁸ In other words, the policy measures appropriate for crisis management may differ markedly from regulatory and supervisory measures needed in normal times, which is only natural given the swing in the appropriate balance of efficiency and stability that occurs between “good” and “bad” times.

INTERBANK MARKET INTEGRATION

The interbank market was the most successful example of European integration before the crisis, full integration having been achieved almost immediately after the introduction of the euro. It was also one of the first victims of

the current crisis, with signs of segmentation and even re-nationalisation from August 2007 and especially from September 2008.⁷⁹ More recently, however, as discussed in Chapter 1 of this report, tensions in the money market have increasingly receded.

The interbank market contributes to financial stability through risk-sharing. When banks report their funding needs truthfully, the secured interbank market is an optimal risk-sharing device, which allows diversification without the risk of cross-regional financial contagion. However, in the absence of sufficient retail market integration, free-riding on liquidity provision may limit the achievable level of risk-sharing.⁸⁰

It has also been suggested, on the basis of theoretical models of interbank markets, that the integration of such markets may increase the risk of a systemic crisis in the event of a sudden freeze prompted by market liquidity shocks,⁸¹ the perceived insolvency of interbank market players⁸² or asset rollover risk with uncertain asset quality.⁸³

- 75 A. Popov and G. Udell, “Cross-border banking and the international transmission of financial distress during the credit crunch of 2007-08”, mimeo, ECB, 2009. Similar behaviour has been observed in J. Peek, and E. Rosengren, “The International Transmission of Financial Shocks: The Case of Japan”. *American Economic Review*, Vol. 87, 1997, pp. 495-505.
- 76 D. Mihaljek, “The Financial Stability Implications of Increased Capital Flows for Emerging Market Economies”, *Financial Globalisation and Emerging Market Capital Flows*, Vol. 44, BIS, 2009, pp. 11-44.
- 77 X. Chen, “Banking Deregulation and Credit Risk: Evidence from the EU”, *Journal of Financial Stability*, Vol. 2, 2007, pp. 256-290.
- 78 R. Eisenbeis and G. Kaufman, “Cross-Border Banking and Financial Stability in EU”, *Journal of Financial Stability*, Vol. 4, 2008, pp. 168-204.
- 79 N. Çassola, C. Holthausen and M. Lo Duca, “The 2007/2008 Crisis: A Challenge for the Integration of the Euro Area Market?”, mimeo, ECB, 2008.
- 80 F. Fecht, H. Grüner and P. Hartmann, “Welfare Effects of Financial Integration”, CEPR *Discussion Paper*, No 6311, Centre for Economic Policy Research, 2007.
- 81 X. Liu and A. Mello, “The Capital Structure of Financial Institutions and Liquidity Crises”, mimeo, University of Wisconsin, 2009.
- 82 F. Heider, M. Hoerova and C. Holthausen, “Liquidity Hoarding and Interbank Market Spreads: The Role of Counterparty Risk”, mimeo, ECB, 2009.
- 83 V.V. Acharya, D. Gale and T. Yorulmazer, “Rollover Risk and Market Freezes”, mimeo, New York University, 2009.

A further consequence of interbank market integration when markets are incomplete is contagion. Interbank linkages mean that problems in one bank can spread to other (potentially sound) banks. The possibility of contagion arises from the overlapping claims that different banks have on one another rather than from asset price volatility. When one bank defaults another bank suffers a loss because its claims on the troubled bank fall in value, and this process can give rise to domino effects throughout the system.⁸⁴ Interbank market integration results in lower lending rates for businesses, which have a beneficial effect on the cost of capital, but may also contribute to firm leverage. The build-up of high leverage in “good” times may then exacerbate the adverse market reaction in a subsequent crisis, through the firm balance sheet channel.⁸⁵

The sequence of events in the recent crisis demonstrates the need for central banks to act as liquidity providers in times of liquidity strains. One point of concern arising from this action, however, is moral hazard. The costs of intervention thus need to be traded-off not only against the costs of contagion, but also against those of the future moral hazard associated with increased risk-taking by financial institutions in the future.⁸⁶

CROSS-MARKET INTEGRATION

One particular development in financial integration in the past decade has been the deepening of cross-dependencies and cross-penetration between different financial markets. A prime role is played in this regard by many hedge funds and private equity companies. Market interdependencies associated with the activities of these financial firms derive from the nature of funding liquidity and asset liquidity. When leveraged financial institutions like hedge funds and private equity funds make losses, these affect both the providers of funding liquidity (through collateral) and the providers of asset liquidity (through the falling prices of assets resulting from fire sales).⁸⁷ This sub-section will review recent evidence on such interdependency,

as well as the direct channel of involvement of this type of market participant in “new” markets, and will assess the contribution of this cross-market integration to financial stability. While the concept of cross-market integration is arguably somewhat detached from the definition of financial integration in this report (which uses a geographic criterion), the academic literature has pointed to the increasing contribution of this phenomenon to systemic risk, rendering it relevant to the link between integration and stability.

Regular hedge fund activities tend to improve liquidity conditions, in particular in markets where relatively illiquid securities are traded (e.g. MBSs, convertible bonds, CDOs), and their wide variety of arbitrage activities further enhance cross-market integration. While this involvement has well understood positive effects in the form of risk diversification and price discovery, there are also implications for financial instability. For one, although hedge funds generally use rather heterogeneous investment strategies or “styles” – which is one reason for the relatively weak *average* return correlation across different styles – their trades and returns can become highly correlated in times of stress, posing additional threats to systemic stability. For example, there is evidence for increased “contagion risk” among hedge fund styles owing to coordinated asset fire sales to meet margin calls and investor redemptions in response to large initial shocks to general funding and asset liquidity.⁸⁸ In such situations, hedge funds also tend to disengage from their regular liquidity-enhancing activities. As a result, hedge funds can accelerate emerging

84 F. Allen and D. Gale, “Financial Contagion”, *Journal of Political Economy*, Vol. 108, 2001, pp. 1-33.

85 S. Ongena and A. Popov, “Interbank market integration, loan rates and firm leverage”, mimeo, ECB, 2009.

86 F. Allen and E. Carletti, “Credit Risk Transfer and Contagion”, *Carnegie Rochester Conference Series on Public Policy*, Vol. 53, pp. 89-111.

87 M. Brunnermeier and L. Pedersen, “Market Liquidity and Funding Liquidity”, *Review of Financial Studies*, Vol. 22, 2009, pp. 2201-2238.

88 M. Boysen, C.W. Stahel and R.M. Stulz, “Hedge Fund Contagion and Liquidity Shocks”, mimeo, Ohio State University, 2009.

“liquidity spirals”⁸⁹ and exacerbate segmentation across markets lacking sufficient arbitrage trades (e.g. the collapse of two highly leveraged Bear Stearns hedge funds on 20 June 2007 was one trigger of the collapse in the market for subprime backed CDO securities).⁹⁰

Second, hedge funds impose counterparty credit risk on other investors. A lack of transparency of hedge funds’ positions can make it difficult to assess how leveraged and exposed hedge funds are, and it may be difficult to assess the magnitude of counterparty risk. Since systemic crises are characterised by investor panic, this lack of hedge fund transparency may lead to more extreme reactions by their investors, prime brokers and other lenders. Finally, over the past decade hedge funds have started entering the private equity business, thus making this market more liquid and mitigating the financing constraints of the most risky firms,⁹¹ but at the same time exposing it to the downsides of cross-market integration just discussed.

Specific considerations apply to private equity companies, which share much in common with hedge funds, in particular their liquidity and leverage. Such companies play a useful role, as they strengthen market discipline by enhancing the contestability of corporate control. However, there are also other implications. More than half of the volume of leveraged buy-out (LBO) deals is financed with bank loans, mostly syndicated debt issued by banks, which is then sold off to other institutions, like hedge funds, and/or traded in secondary markets or packaged into structured products like collateralised loan obligations (CLOs). The weakened screening and high lending associated with this may induce risks associated with high leverage in the financial sector. The opacity of the distribution of LBO debt across financial institutions, following the institution of the originate-and-sell model, and the increasingly dispersed nature of LBO creditors, makes them more sensitive to signals from other creditors. Thus, even a small shock to the LBO sector can result in liquidity difficulties, as creditors revise their priors and reduce their lending. This process could affect not just the

re-financing of LBO deals, but the financing of other assets as well, including lending by banks.⁹² Various regulatory actions have been suggested to alleviate the systemic risk associated with cross-market integration in the case of hedge funds and private equity firms. For example, greater transparency on asset positions (on-and off-balance sheet), leverage levels, the proportion of illiquid positions and risk concentration can be achieved through secondary trading platforms for CLO tranches and registers of institutional ownership, for instance. Public disclosure may be important to market participants in reducing the counterparty risk that hedge funds and private equity companies impose. It might be desirable to obtain coded information from prime brokers or lengthen lock-up periods.⁹³ Finally, in order to address the problem of the large share of syndicated debt involved in the LBO market, higher capital requirements could be applied to the high-yield exposures of banks, although such requirements are not binding under Basel II for unregulated lenders like hedge funds and private equity firms. However, this should be done carefully so as not to encourage some new form of regulatory arbitrage like the complex CDO structures and the special investment vehicles and conduits witnessed during the run-up to the crisis.

3 THE RELATIONSHIP BETWEEN FINANCIAL DEVELOPMENT AND FINANCIAL STABILITY

As mentioned before, the relationship between financial development and financial stability depends on the specific circumstances and

89 M. Brunnermeier and L. Pedersen, op. cit., 2009.

90 M. Brunnermeier, “Deciphering the Liquidity and Credit Crunch 2007-08”, *Journal of Economic Perspectives*, Vol. 23, 2009, pp. 77-100.

91 D. Brophy, P. Ouimet and C. Sialm, “Hedge Funds as Investors of Last Resort”, *Review of Financial Studies*, Vol. 22, 2009, pp. 541-574.

92 Arguably, however, while warehoused exposures might be significant for some banks, the business has shrunk substantially throughout the world and in Europe (a total LBO new loan volume of merely €2,4 billion in the period from January to September 2009).

93 M. King and P. Maier, “Hedge Funds and Financial Stability: Regulating Prime Brokers Will Mitigate Systemic Risks”, *Journal of Financial Stability*, Vol. 5, 2009, pp. 283-297.

characteristics of the events in question. For example, if financial innovation (in particular new credit-risk shifting instruments) contributes to enhancing risk diversification within the economy, it could make the financial system more stable by improving its shock-absorbing capacity. On the other hand, the same instruments also have the potential to undermine financial stability – for example, the complexity of the instruments offered might lead to a misallocation of capital and risk among market participants. In light of the recent financial crisis, this section focuses on how specific features of recent financial development may erode incentives and transparency and lead to unforeseen feedbacks and increased systemic risk.

SECURITISATION

Securitisation refers to the pooling of individual loans into securities, the holders of such securities being entitled to some fraction of all the interest and principal paid out by the loan portfolio. Prior to the current crisis, the benefits of securitisation were widely recognised. Lenders, as originators, use their superior knowledge of borrowers to issue loans, but are unable to diversify away the idiosyncratic risk of their borrowers. Securitisation allows risk to be transferred from the originators of the loans to financial investors willing to hold the risk, thus allowing risk to be allocated more efficiently both at national and international levels, at least when symmetric distribution of information prevails. As a consequence, the overall amount of credit available to the non-financial sector might expand.⁹⁴ The large and increasing amount of securitisation was interpreted as evidence that capital markets were working. However, the recent financial crisis has highlighted weaknesses in the way securitisation was implemented.

The Financial Stability Board (FSB) has identified a number of core deficiencies in the securitisation process before the crisis:⁹⁵ i) misaligned incentives; ii) a lack of transparency with regard to the risks underlying securitised products, including

those relating to the quality and correlation of the underlying assets; and iii) poor management of the risks associated with the securitisation business, including liquidity risk, and of credit lines and of stress testing of these risks.

The “originate-to-distribute” model of securitisation has relied on the assumption that the potential problems between originators, securitisers and financial investors are negligible; however, two main problems have been identified.⁹⁶ First, the loans included in the securitisation programme suffer from an adverse selection problem when loan originators have “no skin in the game”. Because lenders have more information than investors about the quality of the loans, originators have incentives to hold the good loans and sell off the poor quality ones. Second, even if originators do not have higher-quality information about the loans, they have no incentive to evaluate and monitor the loans. These issues have also been documented by recent academic literature, which argues that securitisation did indeed contribute to a reduction in loan quality.⁹⁷

94 For example, securitisation of US mortgages has affected the average homeowner: it has been progressively easier to access credit markets and to reduce credit market imperfections. The percentage of the stock of outstanding mortgages securitised has increased dramatically from approximately 0% in 1975 to more than 55% in 2005 (see K. Gerardi, H. Rosen and P. Willen, “The Impact of Deregulation and Financial Innovation on Consumers: The Case of the Mortgage Market”, *Journal of Finance*, forthcoming).

95 “The Financial Crisis and Information Gaps, Report to the G20 Ministers and Central Bank Governors”, FSB and IMF, 29 October 2009.

96 Ashcraft and Schuermann provide an analysis of the information frictions in the securitisation process and point out a number of important flaws (see A. Ashcraft and T. Schuermann, “The Seven Deadly Frictions of Subprime Mortgage Credit Securitization,” *The Investment Professional*, Fall 2008, pp. 2-11).

97 B. Keys, T. Mukherjee, A. Seru and V. Vig, “Did Securitization Lead To Lax Screening? Evidence From Subprime Loans 2001-2006”, *Quarterly Journal of Economics*, forthcoming; G. Dell’Ariccia, D. Igan and L. Laevan, “Credit Booms and Lending Standards: Evidence from the Subprime Mortgage Market”, IMF Working Paper, No 08/106, IMF, 2008; A. Mian and A. Sufi, “The Consequences of Mortgage Credit Expansion: Evidence from the 2007 Mortgage Default Crisis”, *Quarterly Journal of Economics*, Vol. 124, 2009, pp. 1449–1496; A. Maddaloni and J.-L. Peydro, “Bank Risk-Taking, Securitization, Supervision, and Low Interest Rates: Evidence from Lending Standards”, *Working Paper*, Financial Crisis Conference, Yale SOM International Centre for Finance, 2009.

A tool that has gained prominence in recent discussions is tranche retention: the idea that originators should be forced to retain exposure to the loans they originate. The choice of the mandatory retention ratio is a complex issue, since if the ratio is set too low the behaviour of originators may not be significantly affected, while higher ratios risk making securitisation unattractive.⁹⁸ An additional way to align the incentives of originators, securitisers and investors would be to make the origination fee payable to the lender conditional upon the number of defaults over some period of the loans. Thus, if default occurs within a certain period of time, the originator would only receive a portion of the fee. This would provide incentives for originators to securitise low risk loans, since high risk loans are more likely to default during the initial period.⁹⁹ In addition, originators might not be able to sell the loan servicing rights, in which case they would have an incentive to choose good loans and monitor them accordingly.

However, the presence of strong conflicts of interest is also a result of the long intermediation chain that has characterised the securitisation process (final investors, credit originators, credit agencies, arrangers, trustees and borrowers). In this regard, the EU covered bond market has been more sheltered from these incentive problems than securitisation markets. This is partly due to its simpler structure and a much stricter regulatory framework, which ties the incentives of originators more strongly to those of investors.¹⁰⁰ The holders of covered bonds, unlike those of MBSs, are paid by the issuing bank, which retains the covered bonds on its balance sheet. If any of the underlying loans default, the bank must replace them in the cover pool with other loans. In the event of the issuer's bankruptcy, the holders of covered bonds have a prior claim on the asset pool, ahead of all others. If the issuing bank does not pay the holders of covered bonds, then they receive the payment stream from the underlying mortgages.

The need for increased transparency in securitisation markets in order to restore confidence has also been discussed by market

participants and regulatory authorities. Market initiatives include, among others, introducing codes of conduct and term securitisation issuers, facilitating access to transaction information, prospectuses and investor reports, standardising definitions and reporting templates, and producing publicly available aggregate statistical data.¹⁰¹ At the same time it is clear that the level of information available to investors in these markets is very limited and varies greatly from country to country, both at the time of issuance and thereafter.¹⁰²

Securitisation worked well for more than thirty years before the subprime crisis. However, in practice, instead of dispersing the risks associated with bank lending, securitisation had the perverse effect of concentrating them in the banking system.¹⁰³ It is argued that securitisation allowed banks to leverage up in quiet times on the basis of funds from new creditors such as pension funds, insurance companies, mutual funds and foreign central banks. As the "originate-to-distribute" securitisation model is characterised by long chains of financial intermediation and is heavily dependent on overall capital market conditions, risks became concentrated in the intermediary sector itself

98 Directive 2009/111/EC of the European Parliament and of the Council of 16 September 2009 amending Directives 2006/48/EC, 2006/49/EC and 2007/64/EC as regards affiliated to central institutions, certain own funds items, large exposures, supervisory arrangements, and crisis management, OJ L302, 17.11.2009, p. 97, requires EU credit institutions to ensure that, in their investments in asset-backed securities, the originator retains at least 5% of the total credit risk exposure of the securitisation. Similar rules mandating a minimum risk-retention ratio for originators have been also proposed by US authorities.

99 B. Hartman-Glaser, T. Piskorski and A. Tchisty, "Optimal Securitization with Moral Hazard", *Working Paper*, Haas Business School, University of California, Berkeley, 2009.

100 See also Special Feature B on European covered bonds.

101 "Ten Industry Initiatives to Increase Transparency in the Securitisation Market", European Securitisation Forum, Press Release of 2 July 2008.

102 For instance, losses are accounted for in very different ways across countries and instruments, and there are often lags in the reporting of this data by trustees.

103 Around half of the approximately \$1.4 trillion total exposure to sub-prime mortgages was borne by US leveraged financial institutions, such as commercial banks and securities firms, according to D. Greenlaw, J. Hatzius, A. Kashyap and H.S. Shin, "Leveraged Losses: Lessons from the Mortgage Market Meltdown", US Monetary Policy Forum Report No 2, 2008.

with damaging consequences for financial stability.¹⁰⁴ In this respect, the EU covered bonds model is a valuable alternative to the US mortgage backed securities model because it is a form of securitisation that mitigates the perverse effects arising from the lengthening of intermediation chains.

FINANCIAL COMPLEXITY

There has been a significant recent trend towards the creation of complex financial securities. In this regard, re-securitisations are an illustrative case. Re-securitisations are securitisations in which the underlying credits include tranches of ABSs. For instance, a CDO collateralised by a pool of mezzanine tranches of various mortgage-backed securitisations is a re-securitisation. A typical tranching scheme involves prioritising the cash flows from the underlying securities, in such a way that the senior claim suffers losses only after the principal of the subordinate tranches has been exhausted. This prioritisation scheme has been designed to ensure that senior tranches have low default probabilities and gain a high credit rating. A study has shown that these senior tranches bear enormous systemic risk, as they are increasingly likely to experience significant losses as the overall economy or market deteriorates.¹⁰⁵ In addition, the same study provides evidence that senior tranches did not offer their investors large enough premia to compensate for the systematic risks they bore. Hence, it is generally recognised that many banks, owing to the complexity of these securities, failed to make capital provisions commensurate with the higher level of risk associated with them. In fact, the applicable regulatory capital regime often failed to distinguish re-securitisations from ordinary ABSs, not fully recognising the larger potential risks associated with the former.¹⁰⁶ Accordingly, the Basel Committee has put forward proposals to have a different set of (higher) risk weights applied to re-securitisation exposures and the European Commission included higher risk weights for re-securitisation exposures in its proposal of July 2009 for an amendment to the CRD.

As a result of complexity and opacity such assets are difficult to price. Many investors therefore relied excessively on the assessments of rating agencies who adopted similar models. By construction, these valuation models need to make a number of assumptions and, because of the leverage, the slightest change in these assumptions can often lead to significant changes in the price of the security. For example, a modest imprecision in the parameter estimates (e.g. for the correlation among pooled loans) can lead the default risk of the structured finance securities to vary to such an extent that a security rated AAA is actually likely to default with a relatively high probability.¹⁰⁷ In fact, these breakdowns in modelling assumptions often occur during extreme market conditions, which tend to further aggravate the level of systemic stress. There is also evidence that the valuation of a given product by different sophisticated market participants can vary substantially,¹⁰⁸ suggesting that significant differences in valuation can be attributed to either differing valuation methodologies or asymmetric information.¹⁰⁹ In addition, even a single bank's

104 See J. Geanakoplos, "Promises, Promises", in W.B. Arthur, S. Durlauf and D. Lane (eds.), *The Economy as an Evolving Complex System*, Vol. II, Addison-Wesley, Reading MA, 1997, pp. 285-320; and H.S. Shin, "Financial Intermediation and the Post-Crisis Financial System", *Working Paper*, 8th BIS Annual Conference, 2009.

105 J. Coval, J. Jakub and E. Stafford, "Economic Catastrophe Bonds", *American Economic Review*, Vol. 99, 2009, pp. 628-666.

106 Re-securitisations are typically more exposed to larger marking-to-market losses and more extreme rating migration than an equivalently rated ordinary asset-backed security, mainly due to their increased leverage.

107 See J. Coval, J. Jakub and E. Stafford, "The Economics of Structured Finance", *Journal of Economic Perspectives*, Vol. 23, 2009, pp. 3-25, and D. Marqués and M. Scheicher, "Securitisation: Causes and Consequences", in A. Berger, P. Molyneux and J. Wilson (eds.), *Handbook of Banking*, Oxford University Press, forthcoming.

108 See A. Bernardo and B. Cornell, "The Valuation of Complex Derivatives by Major Investment Firms: Empirical Evidence", *Journal of Finance*, Vol. 52, No 2, 1997, pp. 785-798.

109 Downing, Jaffee and Wallace document that mortgages securitised have higher probability of early prepayment compared to assets that are not. Their analysis suggests that asymmetric information has an economically important impact on the operation of the market for MBS (see C. Downing, D. Jaffee and N. Wallace, "Is the Market for Mortgage-Backed Securities a Market for Lemons?", *Review of Financial Studies*, Vol. 22, 2009, pp. 2457-2494).

evaluations of different tranches of the same security may be mutually inconsistent.¹¹⁰

Recent academic work has explicitly addressed the role of complexity in financial securities. It has been argued that despite its importance it is surprisingly hard to find a workable definition of the term “complexity”, posing a challenge for policy proposals targeted at complex securities.¹¹¹ They point out that, at a theoretical level, complexity only becomes important in financial markets when agents have a limited ability to process information. Nevertheless, they suggest three ways to deal with complexity: i) by dividing up the valuation of a security into the valuation of its components;¹¹² ii) by using models, but keeping in mind potential modelling pitfalls; and iii) through standardisation of securities or limiting the set of investors allowed to invest in these securities.

The recent crisis suggests that most investors hugely underestimated the risks of the most complex instruments. Therefore, future securities are expected to be much simpler. Standardisation of contractual rules is an effective tool to reduce complexity, but it may lead to less financial innovation. Economic efficiency might be adversely affected if financial markets are unable to innovate in parallel with changes in the economy.

MARKING-TO-MARKET ACCOUNTING

The processing of information on firms is an important function of financial systems. Accounting systems need to be designed so as to provide investors with accurate information and allow them to value securities correctly.¹¹³

Complex securities such as MBSs and CDOs have to be evaluated. Marking-to-market or fair-value accounting rules are intended to help investors understand the value of these assets at any point in time, rather than just relying on their historical purchase price. Given the combination of volatile market prices and the leveraged and maturity-mismatched positions of some financial institutions, marking-to-market accounting has been an essential factor when monitoring

adherence to capital standards.¹¹⁴ The recent credit turmoil, however, led to low or non-existent trading volumes in many instruments, and an unprecedented difference between market bids and what informed investors considered the fundamental value of various sub-prime MBSs and CDOs.¹¹⁵ Many large financial institutions have recognised significant losses since the onset of the crisis as a result of marking down MBS asset prices to market value.

The market breakdown was so severe in the United States, that the Emergency Economic Stabilization Act of 2008 gave the Securities and Exchange Commission (SEC) the power to suspend the application of FAS 157 if the SEC determines that it is in the public interest and protects investors. In addition, an update of FAS 157 by the Financial Accounting Standards

110 See D. Duffie, “Innovations in Credit Risk Transfer: Implication for Financial Stability,” *Working Paper*, Graduate School of Business, Stanford University, 2007.

111 M. Brunnermeier and M. Oehmke, “Complexity in Financial Markets”, *Working Paper*, Princeton University, 2009.

112 Fox example, the price of an index like the ABX, a synthetic asset-backed credit derivatives index, can facilitate valuing structured products (such as a CDO) without performing a full analysis. However, as recent experience has shown, once an index like the ABX becomes illiquid and ceases to be informative, investors have to revert to valuing the security without the help of a building block. Stanton and Wallace document that, during the credit turmoil, prices for the ABX indices were inconsistent with any finite assumption for mortgage default rates, and that ABX price changes were uncorrelated with changes in the credit performance of the underlying loans (see R. Stanton and N. Wallace, “The Bear’s Lair: Indexed Credit Default Swaps and the Subprime Mortgage Crisis,” *Working paper*, Haas Business School, University of California, Berkeley, 2009).

113 See, for example, Hartmann et al. , op. cit., 2007, and Special Feature A of the 2008 ECB Report on Financial Integration in Europe and the references therein.

114 For potential financial stability implications of full fair-value accounting, see also A. Eria, L. Cappiello, F. Dierick, S. Grittini, A. Haralambous, A. Maddaloni, P. Molitor, F. Pires and P. Poloni, “Fair Value Accounting and Financial Stability”, *Occasional Paper Series*, No 13.ECB, 2004.

115 For some institutions, the low marking-to-market valuation also triggered margin calls. When an investor buys a security, such as an MBS, he can use the security as collateral and borrow against it. But he cannot borrow the entire price. The difference between the security’s price and the collateral value is denoted as margin. A margin call occurs, when the margin posted is below the minimum margin requirement. The investor has to increase the margin that he has deposited or he can close out the position selling the MBS. This might result in further forced sales of MBSs and emergency efforts to obtain cash (liquidity) to pay off the margin call. Write-downs may also reduce the value of bank regulatory capital, requiring additional capital to be raised and creating uncertainty regarding the health of the bank.

Board was issued that eases the marking-to-market rules when the market is unsteady or inactive and provides the option to reclassify held-for-trading assets into the held-to-maturity category. Following the US policy interventions, the European Commission adopted amendments to accounting regulations to ensure that EU financial institutions have the same flexibility as their American competitors.

Recent academic work has explicitly addressed the role of marking-to-market valuation and financial stability. One study examines the consequences of marking-to-market valuation on financial institutions' balance sheets in the presence of externally imposed regulatory solvency requirements.¹¹⁶ It is shown that a shock that depresses the market value of assets might lead to their forced disposal to avoid violation of capital requirements, depressing their price still further. Moreover, a marking-to-market accounting regime can lead to pro-cyclical trades (e.g. financial institutions may be forced to sell securities when prices are falling or to buy them when prices are rising), which amplify the price fall in declining markets, and may thus potentially increase systemic risk in the financial system.¹¹⁷ Under these extreme circumstances, marking-to-market accounting may understate a financial institution's solvency, which may deter potential lenders or shareholders, thus exacerbating the liquidity crisis. Moreover, empirical evidence based on US bank holding company data suggests that marking-to-market valuation is associated with an increased risk of bank contagion and thus increased systemic risk.¹¹⁸ In fact, the analysis indicates that the additional bank contagion associated with marking-to-market valuation is more likely to spread to banks i) that are poorly capitalised or ii) that have a high proportion of fair value assets and liabilities. In a different vein, it is also argued that marking-to-market accounting is unlikely to have added significantly to the severity of the current financial crisis.¹¹⁹ First, the impact of marking-to-market valuation on bank income and regulatory capital is limited.¹²⁰ Second, banks made use of the safeguards and discretion built into marking-to-market accounting, to avoid

marking to potentially distorted market prices and the consequent accounting-induced downward spirals and contagion.¹²¹

Ultimately, marking-to-market valuation per se can only interact with market conditions to increase contagion among banks especially when fair values are used as inputs in the calculation of capital requirements or in incentive contracts for management. Moreover, marking-to-market prices are generally the best available measure of economic value. However determining the net balance of the pros and cons of marking-to-market valuation is a difficult task for regulators and standard setters. One possible policy action would be to provide specific guidance delineating the conditions under which the market for an instrument is no longer considered active enough for marking-to-market accounting to be required, so that valuation based on other criteria,¹²² such as the discounted value of the instrument's

116 R. Cifuentes, G. Ferrucci and H.S. Shin, "Liquidity risk and contagion", *Journal of the European Economic Association*, Vol. 3, 2005, pp. 556-566.

117 See G. Plantin, H. Sapra and H.S. Shin, "Marking-to-market: Panacea or Pandora's box?", *Journal of Accounting Research*, Vol. 46, 2008, pp. 435-460.

118 U. Khan, "Does fair value accounting contribute to systemic risk in the banking industry?", *Working paper*, Columbia Business School, 2009.

119 C. Laux and C. Leuz, "Did Fair Value Accounting Contribute to the Financial Crisis?", *Journal of Economic Perspectives*, forthcoming.

120 For example, banks that focus on traditional lending business can largely avoid the effects of marking-to-market accounting on their balance sheets or income statements by classifying their loans as held-for-investment. Similarly, for held-to-maturity securities, marking-to-market accounting is not required.

121 For example, in the fourth quarter of 2008, Citigroup reclassified debt securities with a carrying value of approximately USD 60 billion as held-to-maturity; in this way, Citigroup was able to limit the negative effect of further declines in fair value on net income or shareholders' equity.

122 Fair-value accounting guidelines recently stipulated by Financial Accounting Standards Board (FASB) and International Accounting Standards Board (IASB) have several safeguards against marking to potentially distorted market prices and hence against accounting-induced downward spirals and contagion. First, the rules explicitly state that prices from a forced liquidation, or distress sales, should not be used in determining the fair value. Second, when markets become inactive and transaction prices are no longer available, market participants might rely on an income approach valuation technique, discounting the contractual cash flows at an appropriate discount rate (See, for example, "Determining the Fair Value of a Financial Asset When the Market for That Asset is Not Active", *FASB Staff Position Paper*, Financial Accounting Standards Board, October 2009).

future expected payment streams, is allowed.¹²³ Another policy action would be to minimise the inefficiencies arising from the interaction between marking-to-market and capital requirements. For example, if market participants are unwilling to sell securities at prices that force them to mark down other assets, because doing so could force asset sales, the capital requirement could reduce trading, thereby further exacerbating illiquidity in the market. These undesirable effects might be avoided by redefining capital requirements so as to make them counter-cyclical, instead of by abandoning marking-to-market accounting and the other benefits associated with it.¹²⁴

DERIVATIVES AND CENTRAL COUNTERPARTIES

Financial derivatives generally play an important role for the efficient allocation of financial and real capital in the economy: by the unbundling and re-bundling of certain characteristics of the underlying instruments, derivatives help overcome financial frictions through reducing the number and size of discontinuities in the spectrum of available financial instruments which, in turn, erodes some of the differences between different forms of financial intermediation.¹²⁵ Financial derivatives are traded on exchanges or over the counter (OTC), meaning through private negotiation. The majority of these positions are in the form of dealer-to-dealer positions, reflecting the role of dealers as market intermediaries. Certain relatively new derivatives also played a major role in the recent financial turmoil by interconnecting market participants to an extent that was not evident because of the lack of transparency resulting from the predominant over-the-counter market structure. Most of the regulatory and public attention has focused on credit default swaps (CDS). A credit default swap is a derivative contract whose payoff depends on the default of a specific borrower, such as a corporation, or of a specific security, such as a bond. As a result of the overall size of the CDS market and its close linkages with the bond,

loan and equity markets, large exposures to CDS can be associated with substantial systemic risk. Specifically, counterparty risk is the main concern: the potential amount at risk if a counterparty to a CDS contract fails to meet its contractual obligations. Given the significant concentration of CDS risks in a small number of major financial institutions, the failure of one important participant in the CDS market could destabilise the financial system by inflicting significant losses on many other market participants simultaneously.

Central clearing through central counterparties (CCPs) can reduce and more effectively manage counterparty risk. By interposing itself as a seller to every buyer and a buyer to every seller in the market, a CCP enables multilateral netting, diversification and sharing of risk exposures, thereby reducing the levels of counterparty risk and the need of collateral. Furthermore, by fully collateralising all exposures on the basis of stringent margining procedures, a CCP prevents potential defaults of its participants from propagating to other participants and into the wider financial system. Following up on substantial public sector impetus, a number of CCPs for CDS have been established in recent months, including the US-based ICE Trust and Chicago Mercantile Exchange, the British ICE Clear Europe and the German Eurex Credit Clear. Another CCP for CDSs is under development by the French LCH.Clearent SA.

123 Plantin, Sapra and Shin argue that the discount rate to be adopted should be an average of the discount factors observed in the past. Market participants could then be confident that sales by other market participants would have a limited impact on the end-of-period valuation of their assets. This procedure could largely remove the risk of liquidity shocks, while also mitigating the absence of price signals in a historical cost regime (see G. Plantin, H. Sapra and H.S. Shin, op. cit., 2008).

124 J. Heaton, D. Lucas and R. McDonald, "Is Mark-to-Market Accounting Destabilizing? Analysis and Implications for Policy", *Journal of Monetary Economics*, forthcoming.

125 D. T. Lewellyn, "Financial Innovation and the Economics of Banking and the Financial System", in L. Anderloni, D.T. Lewellyn and R.H. Schmidt (eds), *Financial Innovation in Retail and Corporate Banking*, Edward Elgar, 2009, pp. 1-40.

Recent research¹²⁶ indeed suggests that financial institutions should be encouraged to use clearinghouses to clear CDS and other derivatives contracts.¹²⁷ It shows in particular that adding a central clearing counterparty for CDS mitigates counterparty risk and collateral demands, relative to bilateral netting between pairs of dealers.

In addition to CCPs, the establishment of trade repositories for OTC derivatives has received growing attention. Trade repositories are centralised registries where evidence of OTC derivative trades is maintained. In principle, they can thus provide information not only on the volumes and values of trades but also on the terms and conditions (e.g. pricing). Trade repositories are expected to significantly enhance both regulatory and public transparency regarding markets for OTC derivatives, in line with the information needs of the respective constituencies.

Besides the enhanced establishment and use of CCPs and trade repositories for OTC derivatives, two additional requirements need to be met to ensure adequate progress towards safe and transparent OTC derivatives markets.

First, all infrastructures should be properly regulated in a consistent way at the global level, given the global nature of OTC derivatives markets.

Second, as not all OTC derivatives are sufficiently liquid and standardised to allow their central clearing, supervisors should take measures to enhance transparency and risk management also for bilaterally cleared transactions, in particular through mandatory reporting for trade repositories and enhanced collateralisation. The importance of this issue was illustrated during the recent crisis by the case of AIG, a large net seller of CDSs. Most of AIG's CDSs were customised to specific packages of mortgages and would not have satisfied the requirements for central clearing. As a result, the near-default of AIG would have occurred, even if clearing houses for CDSs had been in place.

Finally, given the systemic importance of securities clearing and settlement systems and considering the large proportion of euro-denominated OTC derivatives, there should be at least one CCP for CDS (as well as for other OTC derivatives) in the euro area. The Governing Council confirmed the importance of the issue in its decisions of 18 December 2008 and 16 July 2009. The Eurosystem gives particular priority to the use of euro area infrastructures for OTC derivatives denominated in euro and monitors the respective developments.

4 CONCLUSIONS

Financial development and financial integration affect financial stability through a variety of channels. They improve financial efficiency, diversification, and risk-sharing, which tend to have stabilising effects, but at the same time they may increase instability through the proliferation of less transparent financial products, changed incentive structures that encourage excessive risk-creation and risk-taking, the choice of correlated strategies and increased contagion risks.

While the progress towards more advanced and integrated financial markets cannot and should not be seen to stand in contrast with the objective of financial stability, a stronger prudential framework, including both effective regulation and supervision, is essential in order to limit the ensuing potential risks for financial stability.

¹²⁶ See "Credit Default Swaps, Clearinghouses and Exchanges", Squam Lake Working Group on Financial Regulation, 2009; V.V. Acharya, R. F. Engle, S. Figlewski, A.W. Lynch and M. G. Subrahmanyam (2009), "Centralized Clearing for Credit Derivatives", in V.V. Acharya and M. Richardson (eds), *Restoring Financial Stability, How to Repair a Failed System*, John Wiley & Sons, 2009, pp. 251-268; and D. Duffie and H. Zhou, "When Does a Central Clearing Counterparty Reduce Counterparty Risk?", Working Paper, Graduate School of Business, Stanford University, 2009.

¹²⁷ See also Commission communication "Ensuring Efficient, Safe and Sound Derivatives Markets", COM (2009) 332, Staff Working Paper SEC (2009) 905, and Consultation Document SEC (2009) 914.

This Special Feature has evaluated the recent research on the financial stability implications of certain financial trends that have played a role in the context of the present crisis. In this respect, the uncontrolled spreading of extreme securitisation techniques, the advent of complex hard-to-value securities and weaknesses in the trading infrastructures for credit derivatives seem, according to this research, to have been particularly important. It was also noted that, in the context of highly complex and volatile markets, marking-to-market accounting rules may in some situations act as a conduit for crisis propagation.

Specific suggestions emerging from research deserve attention in the context of the ongoing reflection on the prospects for financial reform. They include requirements that originators retain an economic interest in their securitisations, that products be simpler and more standardised, intermediation chains shorter, collateral better documented, the role of ratings reduced and investor diligence strengthened, and – more generally – that capital and liquidity requirements be strengthened and made less pro-cyclical. It may also be desirable that the role of covered bonds is promoted relative to off-balance-sheet securitisation in countries where the former is still underdeveloped. Credit derivatives markets would benefit from standardisation and a move to a small number of central clearing counterparties. As regards the role of marking-to-market accounting, possibilities to ease the rules during stress and counter-cyclical regulatory capital requirements have also been examined. Policies that could help to contain the rapid transmission of instability in integrated financial markets include greater transparency regarding the assets, liquidity and leverage of non-bank financial intermediaries such as hedge funds and private equity firms. Macro-prudential supervision aimed at an early identification of the build-up of widespread imbalances and a careful measurement of cross-market contagion risk, as well as more effective crisis management (including transparent resolution and recapitalisation mechanisms for large

cross-border financial groups) are promising ways to alleviate the systemic risk potential of integration and development without reducing their benefits. All these initiatives, if pursued carefully over time, would considerably reduce the likelihood of a re-emergence of the financial weaknesses that contributed to the financial crisis.



CHAPTER III

EUROSYSTEM ACTIVITIES FOR FINANCIAL INTEGRATION

The Eurosystem distinguishes between four types of activity through which it contributes to the enhancement of financial integration: (i) advising 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 2009.

I THE 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 clearly plays an important facilitating role. In order to support the efficient and effective conduct of cross-border financial activities, the EU framework should be designed to lower legal and regulatory impediments and provide a level playing-field, while ensuring that the necessary financial stability safeguards are in place. In particular, strong mechanisms for information-sharing and coordination between home and host authorities are needed to ensure that potential cross-border vulnerabilities are detected and adequately addressed.

Against this background and in line with their advisory and regulatory functions,¹ 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 on the further development of the EU framework for financial regulation and supervision. Examples of such input are the publication of Eurosystem position papers on the websites of the ECB and NCBs and informal discussions with the regulatory and supervisory committees. Furthermore, the ECB and the Eurosystem provide both formal opinions and informal input for EU legislation in the area of financial services. They may also contribute to the ex post evaluation of regulatory measures.

During 2009 the activities of the ECB and the Eurosystem in this area related in particular to the following issues.

EU SUPERVISORY ARRANGEMENTS

The Lamfalussy process² for financial regulation and supervision was designed to speed up the regulatory decision-making process and to enhance convergence and cooperation in the supervision of European financial institutions and markets. In order to reap the full benefits of the process, the Ecofin Council carried out a review of the Lamfalussy process in 2007 and evaluated the progress made in its implementation in May 2008.³

The financial crisis, however, intensified the debate on the EU supervisory architecture. As a result, the European Commission set up an independent High Level Group in October 2008 to develop proposals to strengthen the supervision of European financial institutions and markets and financial stability arrangements. In February 2009, the group published a

- 1 The ECB must 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 field of payment systems and statistics.
- 2 With the objectives of a more efficient and flexible EU legislative decision-making process and more consistent regulation and supervision across Member States, the Lamfalussy process provides for four levels of financial services legislation. The Ecofin Council started a review of the process in 2007 in order to reap the full benefits of the process (see Box 2 in Special Feature A of this report for more information).
- 3 See the "Council conclusions on the EU supervisory framework and financial stability arrangements", 2866th Economic and Financial Affairs Council meeting, Brussels, 14 May 2008.

comprehensive set of recommendations relating to international cooperation in financial regulation, EU supervisory architecture, and cooperation between authorities in crisis situations. In particular, it proposed that an enhanced European financial supervisory framework should be based on two core elements that would take care of micro- and macro-prudential supervision at the EU level.

Following the support of the European Council in June 2009, the European Commission presented legislative proposals on 23 September 2009 for the establishment of

- a European Systemic Risk Board (ESRB) to assess risks to the stability of the entire financial system and to issue risk warnings and, when necessary, recommendations. The ECB will ensure the provision of the ESRB secretariat and thereby provide the Board with the necessary analytical, statistical, administrative and logistical support; and
- a European System of Financial Supervisors (ESFS) for the supervision of individual financial institutions.

These proposals are now being discussed by the European Parliament. The content of the proposals and their expected impact on financial integration is studied in more detail in Special Feature A of this report.

The ECB has liaised closely with the European Commission during the process and has also been formally consulted on the establishment of the ESRB and European Supervisory Authorities (ESAs) that form part of the ESFS.

In its opinion on the proposals to establish the ESRB and to entrust the ECB with specific tasks concerning its functioning, the ECB expressed its broad support for the proposed legal framework.⁴ The ECB in particular stands ready to support the ESRB and to provide its secretariat. The macroeconomic, financial and monetary expertise of all of the EU national central banks will be made available to the ESRB. In the

area of statistics, the ECB is also prepared to provide the necessary information to the ESRB on the macroeconomic and macro-financial environment, including in particular information on market conditions and market infrastructures. The ECB finally noted that the involvement of the ECB and the ESCB will not alter their primary objective of maintaining price stability.

In its opinion on the proposal to establish the ESAs, the ECB proposed an institutional framework, as well as the planned establishment of a single European rulebook applicable to all financial institutions.⁵ The ECB expressed its strong support for efficient institutional arrangements for cooperation between the ESAs and the ESRB, and the close involvement of the ESRB within the new micro-prudential institutional framework. The ECB suggested a few amendments, in particular with a view to removing any obstacles to smooth flows of information between the ESRB and the ESFS, and with respect to ensuring an adequate institutional involvement and participation of the ECB and the ESCB as regards the ESAs and the newly established committees.

EU LEGAL FRAMEWORK FOR PAYMENT SERVICES

To address the legal obstacles to the creation of a single retail payments market, including the provision of cross-border payments services, the European Parliament and Council adopted the Payment Services Directive in November 2007.⁶ The deadline for transposition

4 Opinion of the European Central Bank of 26 October 2009 on a proposal for a Regulation on Community macro-prudential oversight of the financial system and establishing a European Systemic Risk Board and a proposal for a Council Decision entrusting the European Central Bank with specific tasks concerning the functioning of the European Systemic Risk Board, CON/2009/88.

5 Opinion of the European Central Bank of 8 January 2010 on three proposals for regulations establishing a European Banking Authority, a European Insurance and Occupational Pensions Authority and a European Securities Markets Authority, CON/2010/5.

6 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 97/5/EC (OJ L 319, 5.12.2007, p. 1).

of the Directive into Member States' national law was 1 November 2009. However, in some Member States the transposition has been delayed and the Directive will not be in place until early 2010. To ensure a harmonised transposition, the European Commission established a transposition working group (the work of which has now concluded), in which the ECB participated. In connection with the new category of payment service provider introduced by the Directive (i.e. "payment institutions"), the ECB is developing a framework to ensure that relevant statistics continue to be produced, in particular in relation to the coverage, classification and recording of their activities under the European System of Accounts framework.

Another EU legislative process which is expected to foster financial integration in Europe is the reviewed Regulation (EC) 2560/2001 (now named Regulation 924/2009) on cross-border payments in euro.

The scope of this Regulation has now been expanded to include direct debit transactions. The revised Regulation requires, inter alia, that all euro area banks currently offering direct debit services in euro at national level should also be reachable for cross-border direct debits in euro by 1 November 2010. It also prescribes temporary arrangements for cross-border and domestic direct debit interchange fees. The new Regulation reflects recent market developments and is extended to cover direct debits, a payment instrument which is of vital importance in the creation of SEPA. The ECB's opinion on the proposal was published on 12 January 2009.

The ECB has also been involved in the European Commission's review of the E-Money Directive, which establishes the legal framework for the activities of e-money institutions with a view to facilitating the provision of e-money by introducing a lighter supervisory regime. In 2007, the results of an internal ESCB questionnaire confirmed that the national treatment of e-money institutions varied significantly across the EU and that

a harmonised approach for the treatment, and notably the statistical reporting, of such institutions was needed. The revised rules of the new E-Money Directive aim to add certainty concerning the applicability of certain business models and facilitate market entry for new providers. A major modification of the revised rules is a change in the legal definition of e-money institutions from "credit institutions" to "financial institutions". The ECB nevertheless considers that e-money institutions are, and remain, money creating institutions in the economic sense. Thus, e-money institutions will remain within the MFI population for the purposes of monetary statistics, which in turn will enable regular monitoring of their business for minimum reserves and payment oversight tasks.

SECURITIES CLEARING AND SETTLEMENT SYSTEMS

In order to promote convergence of national securities clearing and settlement systems towards the highest standards of safety, soundness and efficiency, the ESCB and the CESR published in June 2009 "Recommendations for securities settlement systems and central counterparties in the European Union". The initial work to adapt the 2001 CPSS-IOSCO (Committee on Payment and Settlement Systems – International Organization of Securities Commissions) Recommendations for SSSs – and from 2004, the recommendations for CCPs – to the specific features of the EU environment started in 2001 and was temporarily frozen in 2005 owing to difficulties in resolving three issues regarding the scope, content and legal basis of the ESCB-CESR recommendations.

Upon invitation from the Ecofin Council, the ESCB and the CESR resumed their work in June 2008. The review took into account all recent regulatory and legal developments and other initiatives. The European Commission, the Committee of European Banking Supervisors (CEBS) and relevant market participants and associations were closely consulted during the process. In view of the financial stability risk

posed by the growing scale of OTC derivatives exposures, the risks relating to OTC derivatives were also taken into account when reviewing and finalising the recommendations for CCPs.

The recommendations are addressed to regulators and overseers, who will use them as a regulatory tool and will strive to achieve their consistent implementation and a level playing field for SSSs and CCPs in the EU. It is envisaged that all SSSs and CCPs will have been assessed against these recommendations by the end of 2011.

2 CATALYST FOR PRIVATE SECTOR ACTIVITIES

While public authorities have the responsibility of providing an adequate framework conducive to financial integration, progress in European financial integration ultimately depends on private sector initiatives making full use of 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 Eurosystem 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 knowledge of and 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 for the unsecured money market, based on confidential contributions from banks.

In 2009, the catalytic activities of the ECB and the Eurosystem focused mainly on the following initiatives.

STEP INITIATIVE

The STEP initiative, pursued by market participants under the auspices of the European Banking Federation (EBF) and the Financial Markets Association (ACI), and steered by the STEP Market Committee, promotes the integration and development of a pan-European short-term paper market through a voluntary core set of market standards and practices. The ECB and the Eurosystem have supported the STEP initiative since its inception in 2001 by facilitating interaction among market participants, contributing to the development of the STEP Market Convention and by raising public awareness.

Following the successful launch of the STEP market in June 2006, the Eurosystem has continued its support in two ways. First, the ECB provides statistics on the STEP market, which include monthly outstanding amounts, daily yields and spreads on new issues, and publishes these on its website.⁷ Since end-November 2009, the ECB also publishes daily statistics on aggregated outstanding amounts and new issues broken down by sector, maturity, rating and currency. Second, the Eurosystem continues to assist the STEP Secretariat in the labelling of STEP paper on the basis of a temporary arrangement until June 2010. The ultimate responsibility for granting and withdrawing the STEP label rests fully with the STEP Secretariat.

Notwithstanding the distressed market conditions, the total outstanding amount of STEP debt securities increased by 6.4% (year on year) in December 2009, reaching €404.8 billion. One reason could be that the STEP market is accepted as a non-regulated market for collateral purposes in Eurosystem

⁷ See the ECB's website at <http://www.ecb.europa.eu>.

credit operations. The increase was partly fuelled by the decision of the ECB's Governing Council in October 2008 to expand the list of assets eligible as collateral in Eurosystem credit operations to include STEP labelled paper issued by banks. Since the introduction of the STEP label in 2006, there are 149 active STEP label programmes (as of 31 December 2009). Further information on STEP and STEP-labelled programmes can be found on the STEP Market website.⁸

STRUCTURED FINANCE MARKETS

In order to reactivate the structured finance market in Europe, the Eurosystem may act as a catalyst by supporting market-led initiatives that promote the reactivation of the securitisation markets and create a viable structure which would also attract medium to long-term institutional investors. In this respect, and to increase transparency on ABSs, the Eurosystem may, together with rating agencies, issuers and investors, launch an initiative aimed at providing loan level data on the underlying assets of ABS deals. A well functioning securitisation market, backed by standardisation and enhanced post-issuance transparency, contributes to the completeness of the European financial system and fosters integration through the improved comparability of deals across borders.

The severity of the current economic contraction prompted the ECB to introduce a comprehensive set of non-standard liquidity measures. One of these measures was an outright purchase programme for covered bonds. The covered bond market, which has historically been an important source of funding for banks in large parts of the euro area, has suffered during the financial crisis, both in terms of primary and secondary market activity. The total sum allocated to the purchase programme (€60 billion, representing about 5% of the outstanding eligible covered bonds) proved to be sufficiently significant to support activity in this market. Although the covered bond purchase programme is part of the enhanced credit support package, it also

reflects the Eurosystem's roles of supporting the functioning of the market and acting as a catalyst for this market rather than as a market-maker of last resort.⁹

SEPA INITIATIVE

The Single Euro Payments Area (SEPA) is an initiative aimed at achieving a fully integrated market for retail payment services in the euro area with no distinction between cross-border and national payments. Moreover, SEPA will also contribute to the more general integration of retail banking markets.

In particular, SEPA allows individuals, corporations and public administrations to make cashless payments denominated in euro throughout the euro area and the other SEPA countries from a single account anywhere in the SEPA, using a single set of payment instruments, as easily, efficiently and safely as they can make them today at the national level.

SEPA will bring substantial economic benefits to society, e.g. by enhancing the automation of payments throughout Europe.¹⁰ SEPA is a logical consequence of the introduction of the euro in (currently) 16 countries in Europe. SEPA now comprises 32 countries and 2 territories.¹¹

Since the start of the SEPA project by the market, the Eurosystem has played a catalyst role.¹² In 2009, the Eurosystem continued to organise and attend meetings with various stakeholders, including end-users, infrastructure providers and card schemes. The ECB also participated as an observer at plenary meetings of the European Payments Council (EPC) and

⁸ See <http://www.stepmarket.org>.

⁹ See also Special Feature B on European covered bonds in this report.

¹⁰ 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.

¹¹ The EU27, Iceland, Norway, Liechtenstein, Switzerland, Monaco, Mayotte and Saint-Pierre-et-Miquelon.

¹² Detailed information on the activities of the Eurosystem in this regard is provided on the ECB's website at <http://www.ecb.europa.eu>.

in the working groups that report to the EPC plenary. In this context, throughout 2009 the Eurosystem continued to provide assistance to the banking industry with regard to the design and preparation of the new SEPA instruments and frameworks.

The Eurosystem assisted with removing the last obstacles to the launch of the SEPA Direct Debit (SDD). In particular, the ECB and the European Commission provided clarity in two joint press releases of 4 September 2008 and 24 March 2009¹³ on the European authorities' expectations concerning the interim and long-term interchange fees for the SDD.

The SDD was launched successfully on 2 November 2009, by which date more than 2,500 banks had signed up to offer this truly new European payment service. The launch of the SDD marked the second major SEPA milestone after the launch of the SEPA credit transfer (SCT) in January 2008.

Furthermore, the Eurosystem has been monitoring the migration towards the usage of the SEPA payment instruments on the basis of "SEPA indicators".¹⁴ The migration from domestic credit transfers to SCTs also advanced in 2009, reaching 6.2% in January 2010 (see Chart C27 of the Statistical Annex).

In addition, the Eurosystem organised two eSEPA¹⁵ meetings with market agents (in April and December 2009) to discuss the current status of relevant initiatives. Currently, work is continuing on the development of a pan-European online payment solution¹⁶ and progress is being made in the field of mobile payments and electronic invoicing. These innovative payments initiatives can build on the foundations laid by the SCT and SDD. The Eurosystem will continue to monitor the progress in this area.

Despite the positive developments in the SEPA project in 2009, further work needs to be done. In particular, the Eurosystem expects at least one additional European card scheme

to emerge in the coming years which meets its requirements and those of cardholders, banks, merchants and competition authorities. Several market initiatives are under way to create such a European card scheme.

In addition, the migration to EMV chip cards with a personal identification number (PIN) and the updating of ATM and POS terminals with the EMV standard, an important SEPA building block, both advanced well in 2009. Indicators for the migration to SEPA of cards are available on the ECB website.¹⁷

In May 2009, the Eurosystem organised a meeting with a broad range of stakeholders on a SEPA certification framework for cards and terminals. Such a framework would result in card and terminal manufacturers having to follow a single evaluation and certification process in SEPA, instead of a different one for each card scheme.

Moreover, in the Sixth SEPA Progress Report,¹⁷ the Eurosystem recognised that improvements may be needed to the overall governance of SEPA, mainly in relation to stakeholder involvement, transparency and the SEPA migration progress. This issue is being addressed jointly by the Eurosystem and the European Commission.

Furthermore, the Eurosystem stated in its Sixth SEPA Progress Report that setting a realistic but ambitious end date for the migration to the SCT and SDD is a necessary step in order to reap the benefits of SEPA early. Research has shown that a long period of maintaining dual systems would be costly for all.¹⁹ In this

13 Available on the ECB's website at <http://www.ecb.europa.eu>.

14 Available on the ECB's website at <http://www.ecb.europa.eu>.

15 "eSEPA" is an abbreviation for "electronic SEPA" and comprises the development in the area of new and innovative payment solutions.

16 An online payment (or e-payment) is based on an internet banking payment, but has the additional feature that the web-merchant receives a payment confirmation in real time, so that the goods can be released immediately.

17 Available on the ECB's website at <http://www.ecb.europa.eu>.

18 Available at <http://www.ecb.europa.eu>.

19 H. Schmiedel, "The economic impact of the Single Euro Payments Area", *Occasional Paper Series*, No 71, ECB, August 2007.

context, the European Commission issued a public consultation on a possible end date for SEPA migration in June 2009.²⁰ In December 2009, the Ecofin Council invited the European Commission to carry out a thorough assessment of the need for EU legislation to set binding end dates for SDD and SCT and to come with a legislative proposal should the need for binding end dates be confirmed.²¹

Finally, on 25-26 May 2009, a joint research conference “Retail payments: integration and innovation” took place, jointly organised by the ECB and De Nederlandsche Bank.²² Around 200 high-level policy-makers, academics, practitioners and central bankers from more than 30 countries attended this conference, giving proof of the high topicality of this subject. The conference explored the linkages between payments policy, research activities and market practice in the integration and innovation of retail payments.

INTEGRATION OF SECURITIES INFRASTRUCTURES

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 a level of efficiency, integration and soundness compatible with the requirements of the Single Market and the single currency.

Among the private and public sector initiatives aimed at fostering the integration of the post-trading market infrastructure in the EU, the main contributions of the Eurosystem acting as a catalyst in 2009 were related to the Code of Conduct for Clearing and Settlement and the removal of the Giovannini barriers.

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 has had a bearing on the entire trading and post-trading infrastructure for cash equities. The

Code is essentially aimed at allowing users to choose their preferred service provider freely at each layer of the transaction chain. To this end, the Code provides for commitments by the signatories in three areas: price transparency, access and interoperability, and service unbundling and accounting separation.

Together with the European Commission and CESR, the ECB is a member of the ad-hoc group charged with monitoring the implementation of the Code of Conduct.

The Monitoring Group met three times in the course of 2009. The ECB conducted an analysis on the use of price simulators and examples by CSDs as a way of improving price comparability. This work has helped to promote price transparency and comparability in the post-trading environment (see Special Features C for more details).

The Code has provided a voluntary framework and triggered a dialogue to mitigate the trend of increasing frictional costs. It has therefore contributed to an environment in which investors have consistently enjoyed better results.

In particular, interoperability plays a key role in reducing frictional costs and it is therefore important that the momentum in this area is maintained. Even if the future landscape will be more complex, interoperability will for the first time deliver user choice and competition. Moreover, a future interlinked post-trading system may well be more resilient.

However, there are limits to what the Code can achieve as regards regulatory and commercial barriers. To address regulatory barriers, some market participants have been calling for a more proactive involvement of regulators and even

20 The responses show that a large majority of the respondents are in favour of setting a migration end-date by regulation. However, half of them want this subject to some conditions.

21 The complete Conclusions of the Ecofin Council meeting on 2 December 2009 are available on the European Council's website at www.consilium.europa.eu.

22 For further details and conference papers, see the ECB's website at <http://www.ecb.europa.eu>.

legislative action at the EU level, especially in the area of clearing.

As the Code of Conduct ultimately aims to establish freedom of choice, it must be complemented by the full removal of the so-called Giovannini barriers to efficient clearing and settlement. In 2009, the ECB continued to contribute to the work of the CESAME2 which is addressing the removal of those Giovannini barriers to efficient clearing and settlement which result from differences in technical standards and business practices.

Progress in respect of public sector barriers was initially slower, but significant progress has since taken place. In this area, both public sector barrier 5 (on remote access) and barrier 14 (on netting) have been dismantled, and the MiFID²³ has been implemented. More recently, a Recommendation, based on the work of the FISCO, has been published. After more than nine years without any steps having been taken in this area, the European Commission, in close cooperation with the Member States, achieved a well-balanced text urging Member States to grant withholding tax relief and allowing intermediaries to send pooled withholding rate information to the upstream intermediary.²⁴

Much of this work is closely linked to the implementation of T2S and aims to foster harmonisation in the post-trading environment. The importance of harmonisation and the role of the Eurosystem in this field are presented in greater detail in Special Feature C of this report.

EFMLG ACTIVITIES ON THE DRAFT COMMON FRAME OF REFERENCE AND ON STANDARD MARKET DOCUMENTATION

In December 2008, two academic groups – the Study Group on a European Civil Code and the Research Group on EC Private Law (Acquis Group) – submitted to the European Commission the final version of a joint Draft Common Frame of Reference which provides a set of “model rules” covering core areas of civil law such as contract law and proprietary security

rights in movable assets. Since these areas are relevant for the financial industry, the EFMLG responded to the public consultation launched by the European Commission. The ECB has contributed to the work of the EFMLG.²⁵

The ECB was also involved in the EFMLG dialogue with the leading industry organisations sponsoring standard market documentation to discuss the lessons to be learned from the recent market turmoil regarding specific provisions commonly used in financial transactions documentation, and to look at potential divergences between various master agreements.²⁶ In the context of the Lehman Brothers bankruptcy and of the freezing orders of the Icelandic and UK Governments, the termination and close-out procedures, as well as the master agreements supporting them, were severely tested. During the crisis, close-outs of financial transactions were complicated by the fragmentation and diversity of standard market documentation and the co-existence of different, sometimes outdated, versions caused unforeseen issues which need to be addressed.²⁷

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

23 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 45, 30.4.2004, p. 1).

24 Commission Recommendation C(2009)7924 final of 19 October 2009 on withholding tax relief procedures.

25 The EFMLG position paper was published in September 2009 and is available on the EFMLG website at www.efmlg.org.

26 On 15 September 2009, the EFMLG organised a High-Level Legal Symposium in London, in which various representatives from market and banking associations such as ISDA, SIFMA, ICMA, ISLA, EBF and the European Savings Banks Group, and from various major financial institutions, companies, legal groupings and international law firms participated.

27 An EFMLG report reflecting these issues and identifying the areas in which action is available on the EFMLG's website at www.efmlg.org.

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 2009, 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.

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.²⁸ These price and quantity-based indicators cover the money market, the government and corporate bond markets, the equity market and the banking markets (which 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 may 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.

In line with last year's report, the scope of the reporting has been extended to encompass indicators of financial development. In fact, while financial integration is an important factor in increasing the efficiency of a financial system, the latter also depends on each financial system's own degree of development. Here, important factors are the quality of the institutional environment (including laws, regulations, corporate governance structures and market infrastructures) and of the political and cultural factors determining the financial market environment.

All indicators are updated and published semi-annually (in March and September) on the ECB's website.²⁹ The last update was carried out in March 2010.

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".³⁰ 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.

After in-depth discussions in July 2006 and February 2008, the Steering Committee proposed the extension of the work of the ECB-CFS Network by another three years, and modified the Network's research agenda in view of the ongoing financial market turmoil. It was particularly emphasised that network research should focus more on the implications

28 See Chapter I, as well as the ECB reports entitled "Indicators of financial integration in the euro area", September 2005 and 2006, available on the ECB's website at <http://www.ecb.europa.eu>.

29 See the ECB's website at <http://www.ecb.europa.eu>.

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

for financial stability and monetary policy and especially for financial stability. The following three priority areas emerged from these discussions: (1) financial systems as risk managers, risk distributors and risk creators; (2) integration and development of retail financial services and the promotion of innovative firms and (3) financial modernisation, governance and the integration of the European financial system in global capital markets.

In 2009, the work of the Network focused on priorities (1) and (3), with a specific emphasis on risk creation, financial stability, and international financial architecture. On 12-13 November 2009, the 12th Conference of the ECB-CFS Network on “Learning from the Crisis: Financial Stability, Macroeconomic Policy, and International Institutions” took place in Rome, hosted by the Einaudi Institute and Banca d’Italia. It provided research insights into the causes and consequences of the financial crisis, proposals for macro-prudential regulatory and supervisory agenda, as well as interventions by policy-makers in keynote addresses on potential regulatory remedies.

Finally, as it does every year, in 2009 the ECB-CFS Research Network awarded five “Lamfalussy Fellowships” to promising young researchers. In the light of the financial crisis and the pressing need to prepare for a new macro-prudential supervisory function in the EU under the leadership of national central banks and the ECB, particular attention was paid to choosing research projects in relation to important issues in this regard. Research papers delivered within the scope of the ECB’s Lamfalussy fellowship programme in 2009 also addressed different aspects of the interplay between financial integration, market efficiency, and stability. In a paper analysing the effect of retail product choice on investor welfare, Daniel Dorn³¹ documents substantial price dispersion among covered warrants (also known as bank-issued derivatives) that are close substitutes, as well as a general inability of investors to discover attractively priced such warrants. His results imply that the search cost associated with

choosing among many instruments, even when they are relatively homogenous and their pricing is well understood, erases much of the benefits associated with product proliferation. And Nuno Fernandes³² finds that one way in which firms take advantage of financial globalization is by increasingly cross-listing in countries with stronger investor protection. However, he also provides evidence of another process independent of these gains from competition among stock exchanges, namely, the propensity of firms to cross-list on stock exchanges that are experiencing temporarily high valuations, leading to more mis-pricing in the future.

PROVISION OF FINANCIAL MARKETS STATISTICS

Increasing transparency fosters integration, as it facilitates the comparison of products across the economic area. Since 10 July 2007, the ECB publishes nominal yield curves of AAA-rated euro-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.³³

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

31 D. Dorn, “Investors with Too Many Options?”, *Working Paper Series*, ECB, forthcoming.

32 N. Fernandes, “On the Fortunes of Stock Exchanges and Their Reversals: Evidence from Foreign Listings”, *Working Paper Series*, ECB, forthcoming.

33 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.europa.eu>.

wider public and financial market participants, who previously had to rely on references to bonds of individual issuers.

Since the introduction of the euro, and in particular in recent times, there has been increasing demand both from the public and from institutions for timely and accurate statistical data on the euro money market activity. To satisfy this need, an annual euro money market survey has been conducted since 1999 by the ECB and the NCBs that are members of the ESCB. This survey collects data on euro money market activity in the EU during the second quarter of each year. The data include daily average turnover for a variety of market segments (the unsecured market, repo market, derivatives market and short-term securities market) and their respective maturity ranges (from overnight to over ten years). The data are released to the general public as the “Euro Money Market Survey”.³⁴ This annual publication complements the results published in the “Euro Money Market Study”³⁵ which presents, in alternate years, an in-depth analysis of money market activity.

STATISTICS ON INSTITUTIONAL INVESTORS

Given the growing financial role of institutional investors in the euro area, improved statistics on these agents are not only increasingly relevant from a monetary policy perspective, but will also help the monitoring of the financial integration process (see Chapter I). Hence, apart from the statistics collected on MFIs, the ECB also develops and compiles statistics on other financial corporations, focusing on securitisation vehicles, investment funds and insurance corporations and pension funds.

In 2008, the ECB, together with the NCBs, worked on (i) enhancing the statistical requirements addressed to MFIs concerning balance sheet items and interest rate statistics and (ii) collecting statistics on MFIs’ securitisation and financial vehicle corporations’ balance sheets.³⁶ Two regulations addressing these requirements were adopted by the ECB’s

Governing Council on 19 December 2008.³⁷ A third regulation addressing the requirements with regard to MFI interest rate statistics was approved by the Governing Council on 13 March 2009.³⁸ In accordance with these regulations, reporting of monthly and quarterly data will begin in 2010, with data for June 2010, except in the case of securitisation data, which will be for December 2009.

In 2009, the ECB has implemented new investment fund balance sheet statistics. In practice, these consist of two separate datasets, one covering investment funds as part of the other financial intermediaries sector,³⁹ which will be made available on a monthly basis, and the other covering money market funds, as part of the MFI sector, which will be made available on a quarterly basis. The regular euro area investment fund statistics provide users with a harmonised and more detailed picture of the funds industry in the euro area. These statistics provide valuable information, particularly in relation to the portfolio shifts and investment policies of investment funds. With the introduction of the new money market fund balance sheet statistics, the ECB has also enhanced the credit institution balance sheet statistics.

³⁴ See the ECB’s website at <http://www.ecb.europa.eu>.

³⁵ See the ECB’s website at <http://www.ecb.europa.eu>.

³⁶ Financial vehicle corporations are securitisation vehicles and are defined in Regulation (EC) No 24/2009 of the European Central Bank of 19 December 2008 concerning statistics on the assets and liabilities of financial vehicle corporations engaged in securitisation transactions (ECB/2008/30) (OJ L 15, 20.1.2009, p. 1).

³⁷ Regulation (EC) No 24/2009 of the European Central Bank of 19 December 2008 concerning statistics on the assets and liabilities of financial vehicle corporations engaged in securitisation transactions (ECB/2008/30) (OJ L 15, 20.1.2009, p. 1) and Regulation (EC) No 25/2009 of the European Central Bank of 19 December 2008 concerning the balance sheet of the monetary financial institutions sector (Recast) (ECB/2008/32) (OJ L 15, 20.1.2009, p. 14).

³⁸ Regulation EC No 290/2009 of the European Central Bank of 31 March 2009 amending Regulation (EC) No 63/2002 (ECB/2001/18) concerning statistics on interest rates applied by monetary financial institutions to deposits and loans vis-à-vis households and non-financial corporations (ECB/2009/7) (OJ L 94, 8.4.2009, pp. 75-96).

³⁹ Collected under Regulation (EC) No 958/2007 of the European Central Bank concerning statistics on the assets and liabilities of investment funds (ECB/2007/8) (OJ L 211, 11.8.2007, pp. 8-29).

In addition, the ECB has been compiling quarterly insurance corporation and pension fund statistics for the euro area, based on existing information. Significantly improved data reported by euro area NCBs, in liaison with national supervisory authorities, have enabled the ECB to develop and start producing quarterly estimates for the euro area aggregates. The ECB is currently preparing for their regular dissemination and publication (possibly in late 2010). Emphasis is placed on the insurance corporations sub-sector, in particular for financial stability purposes.

In response to important gaps in statistics on credit risk transfer (CRT) instruments revealed by the current financial crisis, important improvements are being made in the statistics on credit derivatives (principally credit default swaps) compiled by the BIS, including the granularity of counterparty breakdowns by sector and region, which is based on the work of a CGFS/BIS Working Group in which the ECB participated.⁴⁰

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 Eurosystem's basic central banking tasks, the Eurosystem 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 2009, the ECB and the Eurosystem focused their activities in the area of central bank services on the following initiatives.

TARGET2

The first-generation TARGET system started operations in January 1999 and facilitated a rapid integration of the euro money market. Between November 2007 and May 2008, it was

replaced by an enhanced second-generation system. While the first-generation system was based on a technically decentralised structure made up of several systems, TARGET2 is based on a single technical platform, also referred to as the Single Shared Platform (SSP), jointly developed and operated by three Eurosystem central banks, namely Deutsche Bundesbank, Banque de France and Banca d'Italia (the so-called 3CB). At present, 23 central banks of the EU and their respective user communities participate in the single platform. In addition, some financial institutions located in other countries of the European Economic Area (EEA) participate in TARGET2 via remote access. The SSP is used for the processing of euro payments and the management of accounts opened for financial institutions with participating central banks. The launch of TARGET2 enables the entire European user community to benefit from the same comprehensive and advanced real-time gross settlement services. TARGET2 offers broad access to credit institutions and ancillary systems.

TARGET2 represents a decisive contribution by the Eurosystem to European financial integration. The first market infrastructure to be completely integrated and harmonised at a European level, the second-generation TARGET2 system has eliminated the fragmented situation that previously existed in the management of central bank liquidity and the real-time settlement in central bank money of euro payments. The move to a single platform TARGET2 system represents a significant step towards a more efficient, competitive, safe and fully integrated European payments landscape, offering all market participants equal conditions and services regardless of their location. The harmonised service level of TARGET2, offered with a single price structure, ensures a level playing-field for all participants across Europe.

40 "Credit risk transfer statistics", *CGFS papers*, No 35, Committee on the Global Financial System, BIS, September 2009.

The move from the first generation TARGET system to TARGET2 was regarded by the user community as very smooth and successful, with a system performance that gave satisfaction to all stakeholders. In January 2009, Slovakia adopted the euro and Národná banka Slovenska joined TARGET2.⁴¹ In addition, National Bank of Bulgaria expressed its intention to connect to TARGET2 as a non-euro area central bank before adoption of the euro. After the necessary preparatory activities had been successfully completed, National Bank of Bulgaria and its national user community joined TARGET2 in February 2010.

The TARGET2 system functioned smoothly in 2009. The system's market share was stable, with 89% of the total value of payments in euro large-value payments systems being executed via TARGET2. In 2009, the average number of payments processed by the system each day was 345,771, while the average value was €2,153 billion. These figures position TARGET2 as one of the largest wholesale payment systems in the world, alongside Fedwire in the United States and Continuous Linked Settlement (CLS), the international system for settling foreign exchange transactions. The technical availability of the Single Shared Platform of TARGET2 for the whole year was 100%.

Observations made with regard to the use of the harmonised and advanced TARGET2 services (payment prioritisation, liquidity reservation, sender limits, liquidity pooling, etc.) confirm that they are actively used by a wide range of participants and that they contribute to the smoother settlement of transactions. TARGET2 and its new features have both enabled and driven organisational changes by credit institutions that operate in several European countries by allowing these entities to rationalise their back office functions and consolidate their management of euro liquidity.

TARGET2 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 securities settlement systems. The main advantage for ancillary systems is that they are able to access any account in TARGET2 via a standardised interface with standardised settlement procedures, thus providing for a substantial harmonisation of business practices.

The Eurosystem has agreed that all euro payments settled in central bank money should ultimately be settled in TARGET2. To facilitate the migration to TARGET2 of central banks and their banking communities, some central banks have opted to maintain some transactions in local systems – referred to as proprietary home account (PHA) applications – for a transition period of up to four years. By December 2009 the volume of TARGET2 transactions settled on the local PHAs was very limited and only accounted for less than 1% of total TARGET2 traffic. This means that the settlement activities on the PHAs are marginal and, in practice, the fragmentation of participants' liquidity between the SSP and the PHAs had limited and manageable effects. In 2009, two central banks took the initiative to move all their payment activities to the SSP before the end of the transition period (Portugal in March 2009 and Belgium in June 2009).

TARGET2-SECURITIES

The T2S project is the Eurosystem initiative that aims to overcome the current fragmentation in the securities settlement layer of the European post-trading landscape. The existence of fragmentation and procedures that have not been harmonised across national settlement systems contributes to high costs and inefficiencies, especially for cross-border securities transactions, which constitute a considerable competitive disadvantage for European capital markets. The development and operation of T2S have been assigned by the Eurosystem to the so-called 4CB, i.e. Deutsche Bundesbank,

41 All euro area countries participate in TARGET, as its use is mandatory for the settlement of any euro operations with the Eurosystem. TARGET is also available, on a voluntary basis, to non-euro area Member States to facilitate the settlement of euro-denominated transactions in these countries.

Banco de España, Banque de France and Banca d'Italia.

The objective of T2S is to achieve harmonised and commoditised delivery-versus-payment settlement in central bank money, in euro and other participating currencies, for virtually all securities in Europe. T2S will not only significantly reduce cross-border settlement fees in Europe, but will also increase the efficiency and stability of capital markets. Together with other European initiatives, such as the Code of Conduct for Clearing and Settlement and the MiFID, T2S will also contribute to the further integration of the European financial industry (see also Special Feature C of this report).

The T2S project made significant progress in 2009. One important milestone was the decision to establish the T2S Programme Board in March 2009. The new body, composed of eight members representing both central banks and industry experts, was formed as a streamlined management structure with the main aim of ensuring the successful and timely completion of the project. The Programme Board is responsible for preparing strategic policy decisions for the ECB's Governing Council, for day-to-day management of the programme and for managing relations with the CSDs, the NCBS, users and other external stakeholders. The Governing Council, however, remains the ultimate decision-making body on T2S issues.

The second major achievement was the signature of the T2S Memorandum of Understanding (MoU) between the Eurosystem and CSDs in July 2009. The MoU was signed in 2009 by 28 CSDs encompassing all euro area CSDs as well as those of Denmark, Estonia, Iceland, Latvia, Lithuania, Norway, Romania, Sweden, Switzerland and the United Kingdom. The signing of the MoU confirmed the parties' commitment to the T2S project and set out the mutual obligations and responsibilities of the CSDs and the Eurosystem, forming a solid basis for the negotiation of the Framework

Agreement, which is expected to be signed in mid 2010.

The third key milestone achieved in November 2009 was the finalisation of the General Functional Specifications (GFS), which describe how the T2S platform will support the functional requirements of the User Requirements Document (URD), and the General Technical Design (GTD), which describes the high level architectural design aiming, inter alia, to exploit synergies with T2. The GFS and GTD pave the way for the preparation of the User Detailed Functional Specifications (UDFS).

The benefits of the T2S project – in terms of price reductions, greater efficiency and higher competition in the post-trading environment – can be significantly leveraged by fostering further market harmonisation at all stages of the post-trading value chain. The T2S platform itself will only deal with the integration and harmonisation of the settlement stage. In order to integrate the other stages (such as asset-servicing and custody) and to create a “single pool of European securities” (that is accessible regardless of the location of the issuer, CSD or investor) it is necessary to make it easier and less costly for post-trading service providers to enter markets in other countries. Harmonisation is the best way to achieve this, as it reduces the investments new entrants need to make to understand the specificities of the non-local market.

In recognition of these wider benefits, the ECB's Governing Council, when deciding to go ahead with building T2S, committed itself to support the work on European harmonisation. Special Feature C of this report provides more details on what T2S is doing in this area, in particular the work of the Corporate Actions Subgroup⁴² and

⁴² The Corporate Actions Subgroup has developed three sets of standards (for market claims, transformations and buyer protection) on corporate actions on unsettled transactions. These standards complement the work of the European Commission's Corporate Actions Joint Working Group.

the Process Efficiency Subgroup,⁴³ as well as on the monitoring of other wider harmonisation issues.

Although the URD will be “frozen” as of early 2010, T2S will continue to actively work on harmonisation in the coming years, monitoring developments in the industry of relevance for T2S, acting as a catalyst for wider harmonisation initiatives and supporting the market in the implementation of existing agreed standards.

EUROSISTEM COLLATERAL MANAGEMENT SERVICES

The correspondent central banking model (CCBM) fosters financial market integration, since its implementation in 1999, by enabling all euro area counterparties to use the common set of eligible assets as collateral in Eurosystem credit operations, regardless of the location in which the security has been issued.

CCBM is the main channel for the cross-border use of collateral in Eurosystem credit operations. In December 2009 it accounted for 25.1% of the total collateral provided to the Eurosystem.

Since the model builds upon the principle of minimum harmonisation, market participants called for a further standardisation of existing procedures, both domestically and at the cross-border level.

Against this background, the ECB’s Governing Council decided, on 17 July 2008, to launch the Collateral Central Bank Management (CCBM2) project. The development and operation of CCBM2 was assigned to the Nationale Bank van België/Banque Nationale de Belgique and De Nederlandsche Bank.

The objective of CCBM2 is to consolidate the existing technical infrastructure into one single platform for domestic and cross-border use of marketable and non-marketable assets. Building upon this infrastructure, a further harmonised service level for Eurosystem counterparties

will be implemented. CCBM2 will be fully compatible with TARGET and T2S, in particular with the communication interfaces of both of these platforms and with the settlement procedures of T2S for the delivery of securities. Consequently, efficiency will be increased by optimising the cost of mobilising collateral through enhanced liquidity management. Moreover, the adoption of real-time and straight-through processing in the system will increase the pace of mobilisation, thereby additionally promoting efficiency.

Although aiming for a technically consolidated management of collateral, CCBM2 will be implemented in accordance with the principle of decentralised access to credit.

In terms of service offering, CCBM2 will support all existing collateralisation techniques and methods such as pledge, repo and assignment, as well as pooling and earmarking.

The Eurosystem is currently in the process of finalising the detailed specifications for users, based on the already approved user requirements.⁴⁴ The Eurosystem will maintain an open dialogue with market participants throughout the subsequent phases of the CCBM2 project.

The launch of CCBM made all collateral available to all counterparties in the euro area, and thus allowed for enhanced portfolio diversification and the integration of collateral markets. With CCBM2, its common technical infrastructure and the harmonised service level, further integration of financial markets is envisaged.

⁴³ See the ECB’s website at <http://www.ecb.europa.eu>.

⁴⁴ The Process Efficiency Subgroup has worked on 11 key issues in 2009, in many cases developing harmonised rules and procedures: T2S handling of repo settlement; recycling rules for “hold” status; recycling rules after matching; threshold for partial settlement; auto-collateralisation; multilateral settlement without a CCP; period for data archiving; single framework for fails management; amendment of settlement instructions; future and backdated transactions; validation rules.

STATISTICAL ANNEX

GENERAL INDICATORS

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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 S4

Chart C2: Cross-country standard deviation of average interbank repo rates across euro area countries S4

Quantity-based indicators

Chart C2S: Outstanding amounts of commercial paper (% of GDP) S5

Infrastructure indicators for large-value payment systems (LVPS)

Chart C3: TARGET2: the share of payments between Member States in total payments (by volume) S5

Chart C4: TARGET2: the share of payments between Member States in total payments (by value) S5

BOND MARKET INDICATORS

GOVERNMENT BOND MARKET

Price-based indicators

Chart C5: Evolution of beta coefficients for ten-year government bond yields S6

Chart C6: Average distance of intercept/beta from the values implied by complete integration for ten-year government bond yields S7

Chart C7: Evolution of intercept and beta coefficients for ten-year government bond yields, adjusted for sovereign risk S7

CORPORATE BOND MARKET

Chart C3S: Debt securities issued by non-financial corporations S8

Price-based indicators

Chart C8: Dispersion in the five-year CDS premia among leading telecommunication firms and commercial banks across euro area countries, daily data, basis points S8

Quantity-based indicators for government and corporate bond markets

Chart C9: Share of MFI cross-border holdings of debt securities issued by euro area and EU non-MFIs: outstanding amounts by residency of the issuer S9

Chart C10: Investment funds' holdings of debt securities issued in other euro area countries and the rest of the world S9

Infrastructure indicators

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EQUITY MARKET INDICATORS

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Quantity-based indicators

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BANKING MARKET INDICATORS

Cross-border presence indicators

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Price-based indicators

Chart C20: Cross-country standard deviation of MFI interest rates on loans to non-financial corporations	S 15
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Quantity-based indicators

Chart C24: MFI loans to non-MFIs: outstanding amounts by residency of the counterparty	S 17
Chart C25: MFI loans to MFIs: outstanding amounts by residency of the counterparty	S 18

Infrastructure indicators for retail payment systems

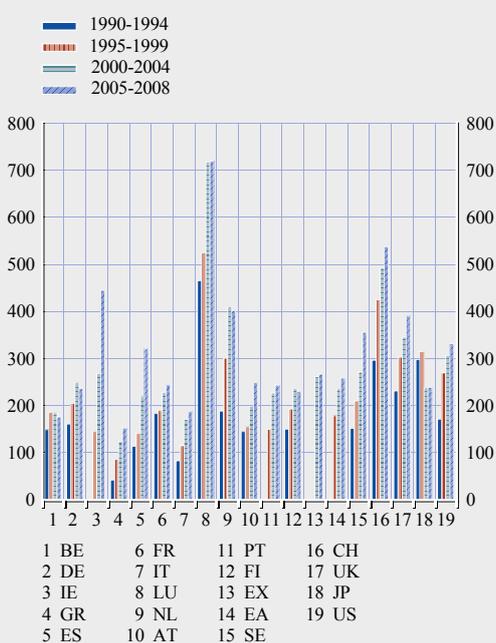
Chart C26: Concentration ratio of retail payment infrastructures in the euro area	S 18
Chart C27: Credit Transfer transactions processed in SEPA format	S 19

MONEY MARKET INDICATORS

PRICE-BASED INDICATORS

Chart CIS Size of capital markets

(aggregate volume of shares, bonds and loans to the private sectors as a percentage of GDP)



Sources: WFE, IMF, ECB, Datastream, Eurostat, ECB calculations.

Description

This indicator is calculated as the 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 country data weighted by GDP.

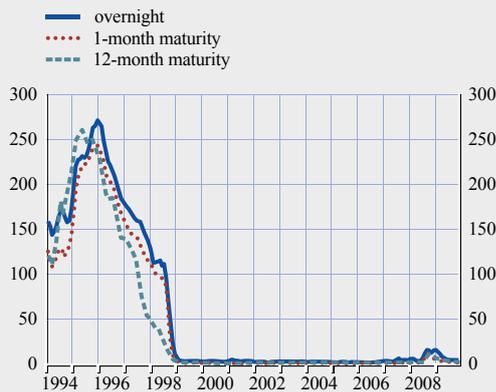
Stock market capitalisation: figures for Japan refer to the Tokyo Stock Exchange. Figures for the United States include AMEX, NYSE and NASDAQ. EA stock market capitalisation is the sum of the values for Euronext and for euro area countries not included in Euronext. Stock market capitalisation includes only shares issued by domestic companies; it does not include shares issued by foreign companies.

Debt securities issued by the private sector: for EA countries, data are from the SEC database. Data for Greece, Ireland and Luxembourg start in 1993. For IE, BIS data are used for the years 1993 to 2002 for monetary financial institutions and for the years 1993 to 2007 for other issuers. For Luxembourg, BIS data for the years 1993 to 2007 are used for non-MFI 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).

Bank credit to the private sector: EA figures are the sum of EA country figures and include cross-border loans between EA countries.

Chart C1 Cross-country standard deviation of average unsecured interbank lending rates across euro area countries

(aggregate volumes of shares)



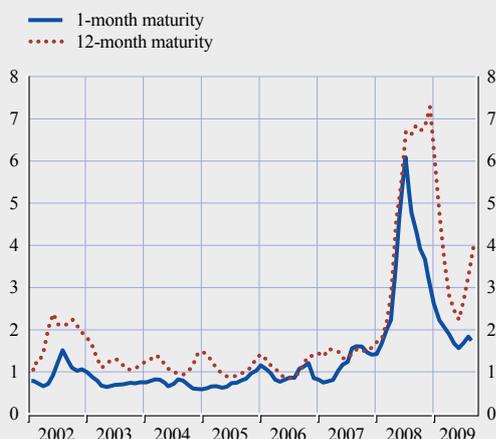
(61-day moving average; basis points)



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 debt or deposits. These data cover the EONIA and the EURIBOR (unsecured lending) as well as the EUREPO for different maturities.¹ 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:

$$D_t = \sqrt{\frac{1}{n_t} \sum_c (r_{c,t} - \bar{r}_t)^2}, \quad (1)$$

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 and taking the end-of-month observation of the smoothed series.

¹ 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", *Monthly Bulletin*, ECB, May 2006.

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).

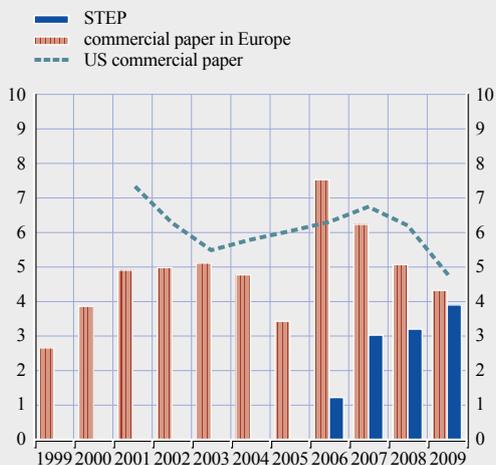
The EURIBOR is the benchmark rate of the large unsecured euro money market for maturities longer than overnight that has emerged since 1999.

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 C2S Outstanding amounts of commercial paper

(percentage of GDP)



Sources: ECB, Euroclear, Banque de France, Dealogic and FED.

Description

The height of the bar for Europe is the sum of euro commercial paper (ECP), and the commercial paper outstanding in the Belgian, German, Dutch, Spanish and French markets. Certificates of deposit and asset-backed commercial paper are excluded. The red bar indicates securities with a STEP label. Since issuance in the ECP market is mainly undertaken by residents in the euro area and the United Kingdom, the outstanding amounts of euro commercial paper are expressed as a percentage of the sum of euro area and UK GDP.

INFRASTRUCTURE INDICATORS FOR LARGE-VALUE PAYMENT SYSTEMS (LVPS)

Chart C3 TARGET2: the share of payments between Member States in total payments

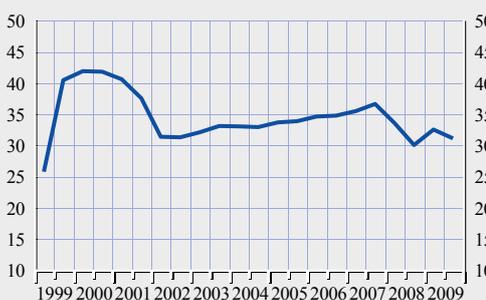
(volumes; percentages)



Source: ECB.

Chart C4 TARGET2: the share of payments between Member States in total payments

(values; 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 RTGS system for the euro. A second-generation system operating on a single shared platform (TARGET2) was launched in November 2007 and fully replaced the former decentralised first-generation TARGET system in 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

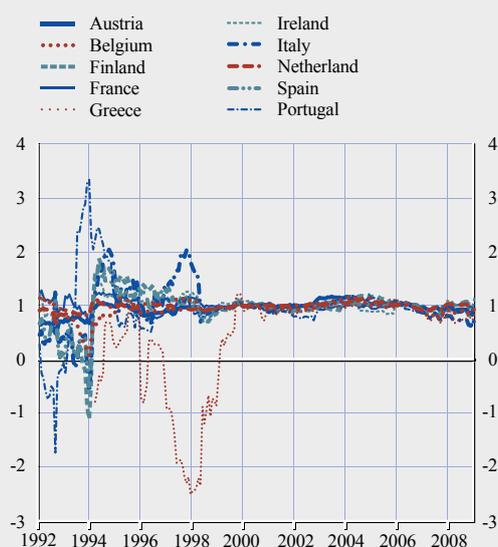
GOVERNMENT BOND MARKET

PRICE-BASED INDICATORS

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.

Chart C5 Evolution of beta coefficients for ten-year government bond yields



Sources: Reuters and ECB calculations.

To separate common from local influences, the following regression is run:

$$\Delta R_{c,t} = \alpha_{c,t} + \beta_{c,t} \Delta R_{ger,t} + \varepsilon_{c,t} \quad (3)$$

where α denotes a country-varying and time-varying intercept; β is a country-dependent and time-dependent beta with respect to the benchmark (German) bond yield; ΔR is the change in the bond yield and ε is a country-specific shock. In this framework, and in the context of complete market integration, α and β would have the values of zero and one respectively.

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.

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 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.

Description

This indicator is derived using regression (3), 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 as

a difference 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.

Description

Sovereign risk is controlled for by proxying it with rating dummies and by modifying regression (3) as follows:

$$\Delta R_{c,t} = (\alpha_{c,t} + \sum_{r \in \{AA+, \dots, A\}} \alpha_{r,t} D_{c,t}^r) + (\beta_{c,t} + \sum_{r \in \{AA+, \dots, A\}} \beta_{r,t} D_{c,t}^r) \Delta R_{ger,t} + \varepsilon_{c,t} \quad (4)$$

where $D_{c,t}^r$ is a dummy for rating r and country c , at time t .

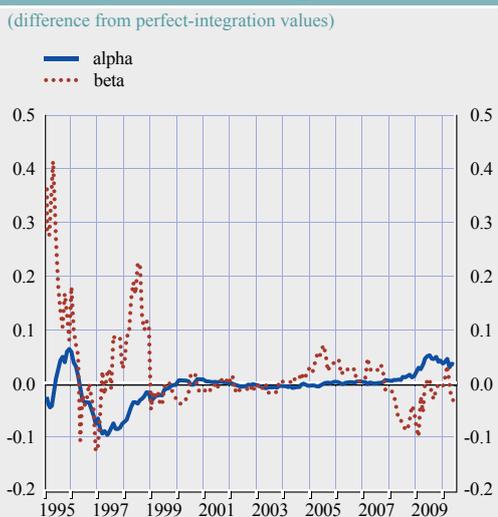
A potential problem with this regression is that coefficients are not identified when there is not sufficient cross-sectional variation in the ratings.

Chart C6 Average distance of intercept/beta from the values implied by complete integration for ten-year government bond yields



Sources: Reuters and ECB calculations.

Chart C7 Evolution of intercept and beta coefficients for ten-year government bond yields, adjusted for sovereign risk



Sources: Reuters and ECB calculations.

To avoid this problem, the above regression is estimated without fixed effects, i.e.:

$$\Delta R_{c,t} = (\alpha_t + \sum_{r \in \{AA + \dots, A\}} \alpha_{r,t} D_{c,t}^r) + (\beta_t + \sum_{r \in \{AA + \dots, A\}} \beta_{r,t} D_{c,t}^r) \Delta R_{ger,t} + \varepsilon_{c,t} \quad (5)$$

Coefficients are made time-varying using a rolling regression (18-month rolling window).

The coefficients (α_r , β_r) now capture the average country reactions to changes in the German government bond yields, after controlling for credit risk factors. Values are calculated and measured as a difference to the values implied by complete market integration (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 1995.

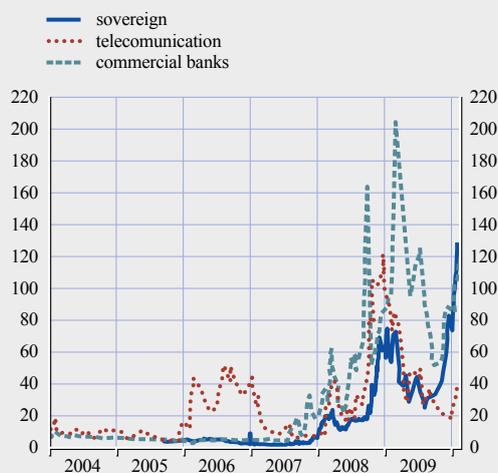
This indicator shows the outstanding amounts of debt securities issued by non-financial corporations, as a percentage of GDP.

For euro area countries, data are from the SEC database. For Ireland and Luxembourg, BIS data are used. Data for Greece, Ireland and Luxembourg start in 1993. For non-EA countries, BIS data are used (sum of international and domestic amounts outstanding of bonds issued by corporate issuers).

PRICE-BASED INDICATORS

Chart C8 Dispersion in the five-year CDS premia among leading telecommunication firms and commercial banks across euro area countries

(daily data; basis points)



Sources: Thomson Reuters Financial Datastream and ECB calculations.

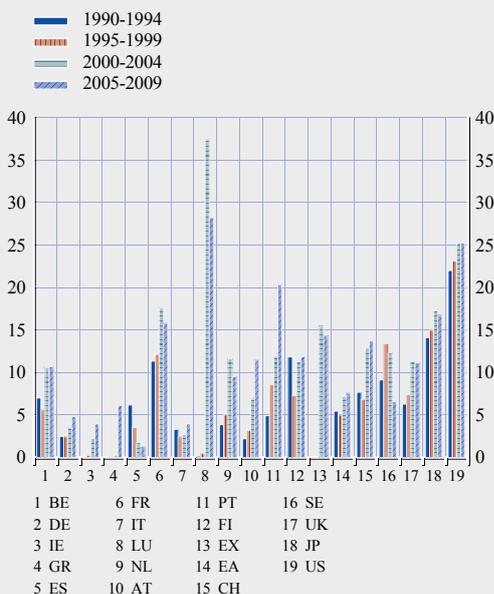
Description

This indicator is based on the evolution of Credit Default Swap (CDS) premia. Specifically, the cross-country standard deviation in CDS premia of a set of homogenous firms across euro area countries, such those of leading telecommunications firms and those of the largest commercial banks is used. The panel comprises the largest banks in terms of total assets by country. For banks, the measure of dispersion is the standard deviation of the unweighted national average across institutions.

CORPORATE BOND MARKET

Chart C3S Debt securities issued by non-financial corporations

(percentage of GDP)



Sources: BIS, ECB, Eurostat and IMF.

Additional information

Sovereign includes Austria, France, Germany, Greece, Italy, Netherlands, Portugal, Spain. *Commercial banks* include ABN AMRO (NL), Alpha Bank (GR), Allied Irish Banks (IE), Anglo Irish Bank Corporation (IE), Banca Monte dei Paschi di Siena (IT), Banca Popolare di Milano (IT), Banco Commercial Portugues (PT), Banco Sabadell (ES), Banco Espirito Santo (PT), Banco Santander Central Hispano (ES), Bank der Oesterreichischen Sparkassen (AT), Bank of Ireland (IE), Bayerische Hypo-und Vereinbank (DE), BNP Parisbar (FR), Commerzbank (DE), Credit Agricole (FR), Deutsche Bank (DE), Dexia Group (BE), EFG Eurobank Ergass (GR), Fortis NL (NL), Intesa San Paolo SPA (IT), Mediobanca (IT), Natixis (FR), National Bank of Greece (GR), Nordea Bank (FI), Piraeus Group Fin PLC (GR), Societe Generale (FR), Unicredito Italiano (IT). *Telecommunication* includes Deutsche Telecom (DE), France Telecom (FR), Hellenic Telecom (GR), KPN (NL), Portugal Telc (PT), Telecom Italia (IT), Telefonica (ES), Telekom Austria (AT).

QUANTITY-BASED INDICATORS FOR GOVERNMENT AND CORPORATE BOND MARKETS

Chart C9 Share of MFI cross-border holdings of debt securities issued by euro area and EU non-MFIs: outstanding amounts by residency of the issuer

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

- other euro area - government and corporate bonds
- other euro area - corporate bonds
- - - other euro area - government bonds
- rest of EU - government and corporate bonds



Source: ECB.

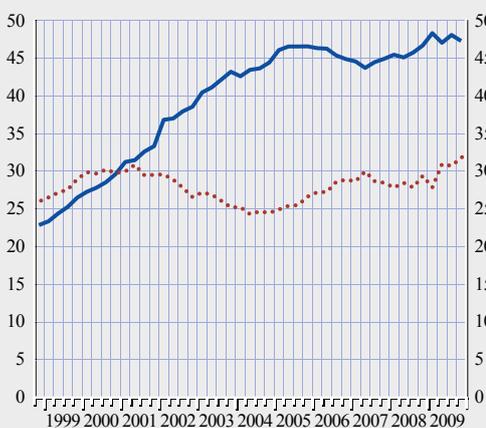
Description

For this indicator, see the indicators on the cross-border securities holdings of the banking markets below (C26 and C27).

Chart C10 Investment funds' holdings of debt securities issued in other euro area countries and the rest of the world

(percentages; share of total holdings of debt securities)

- other euro area Member States
- rest of the world



Source: ECB.

Description

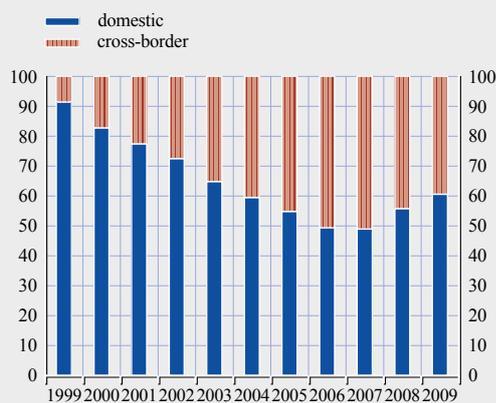
This indicator shows the share of investment funds' total holdings of all securities other than shares (including money market paper) issued by residents of the euro area outside the Member States (OMUMS) in which the investment fund is located and by residents of the rest of the world (RoW). The composition of the two areas is the one prevailing during the reference period.

The computed indicator has a quarterly frequency.

INFRASTRUCTURE INDICATORS

Chart C11 Share of domestic and cross-border collateral used for Eurosystem credit operations

(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 CCBM² and links³ data). An increase in the cross-border use of collateral points towards greater integration of the collateral market. The ability to use any eligible assets as collateral with any Eurosystem component promotes portfolio diversification by counterparties.

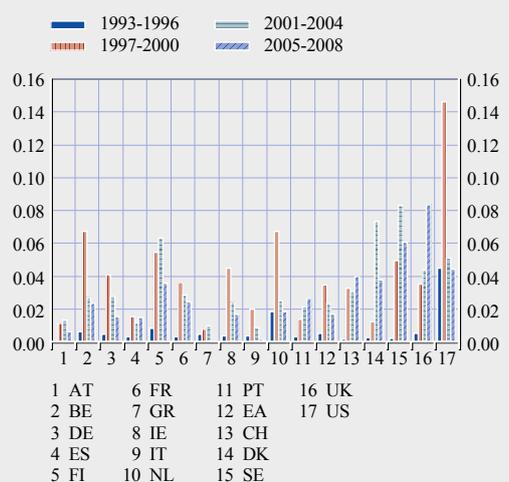
The computed indicator has an annual frequency.

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

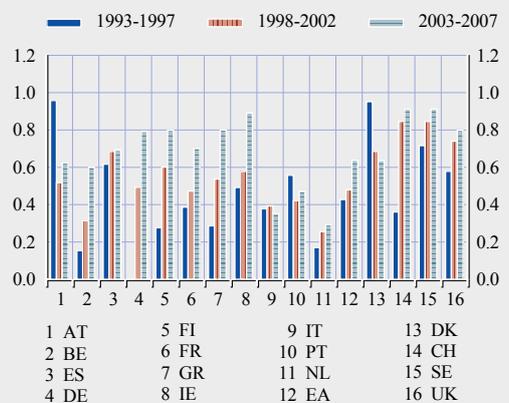
Chart C4S Early-stage venture capital finance, as share of GDP, by country of management



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

No data are available for Luxembourg, Malta, Slovenia or Japan. Data for Greece and the United States start in 1995. Euro area figures are averages of country data weighted by GDP.

Chart C5S Private equity investment by independent funds as share of total private equity investment, by country of management



Sources: European Private Equity and Venture Capital Association.

- Including direct access to an SSS outside the NCB's own jurisdiction.
- Both direct and indirect links.

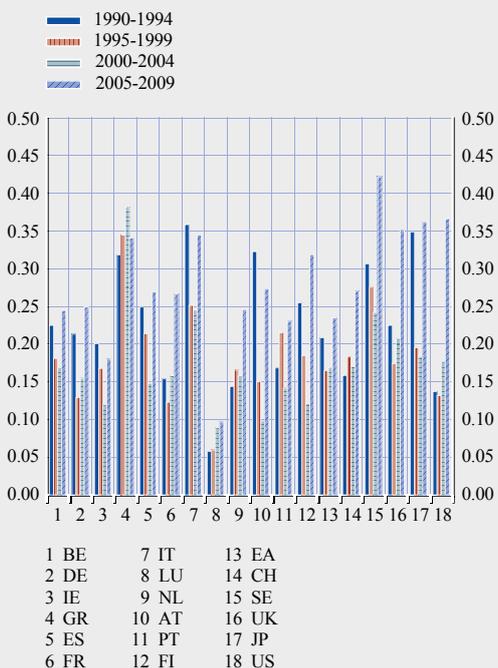
Independent private equity investment is provided by private equity firms that are not themselves owned by another financial institution. Data report investments made by companies in each country. No data are available for Luxembourg, Malta, Slovenia, Japan and the United States. Data for Greece are not available for 1993 and 1994. Euro area figures are averages of country data weighted by GDP.

averages of country R^2 statistics weighted by stock market capitalisation.

PRICE-BASED INDICATORS

Chart C6S Pricing of firm-specific information in the stock market

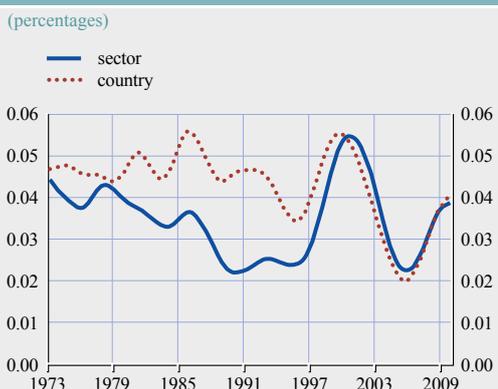
(R^2 statistics)



Sources: Datastream and ECB calculations.

Average R^2 statistics for each country are obtained by regressing firms' stock returns on market factors, i.e. the returns on domestic, euro area, US and emerging countries' stock market indices. Typically, low values of the indicator suggest that stock returns contain more firm-specific information. Euro area figures are

Chart C12 Filtered country and sector dispersions in euro area equity returns



Sources: Thomson Reuters 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.⁴ 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.

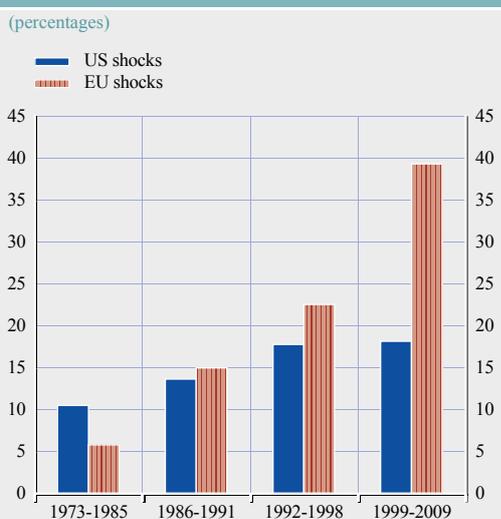
The cross-sectional dispersions are filtered using the Hodrick-Prescott smoothing technique, which provides a smooth estimate of the long-term trend component of the series. The smoothing parameter λ is equal to 14,400.

4 This indicator is based on an approach first presented by K. Adjaouté and J.P. Danthine, "European Financial Integration and Equity Returns: A Theory-based Assessment", in V. Gaspar, P. Hartmann and O. Sleijpen (eds.), *The transformation of the European financial system*, ECB, May 2003, pp. 185-236.

Additional information

The indicator reflects structural changes in the aggregate euro area equity market.

Chart C13 Proportion of variance in local equity returns explained by euro area and US shocks



Sources: Thomson Reuters 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:

$$\sigma_{c,t}^2 = h_{c,t} + (\beta_t^{eu})^2 \sigma_{eu,t}^2 + (\beta_t^{us})^2 \sigma_{us,t}^2 \quad (6)$$

where $h_{c,t}$ is the variance of the local shock component.⁵ The euro area variance ratio is then given by:

$$VR_{c,t}^{eu} = \frac{(\beta_t^{eu})^2 \sigma_{eu,t}^2}{\sigma_{c,t}^2} \quad (7)$$

and correspondingly for the United States. The conditional variances are obtained from a standard asymmetric GARCH (1,1) model.

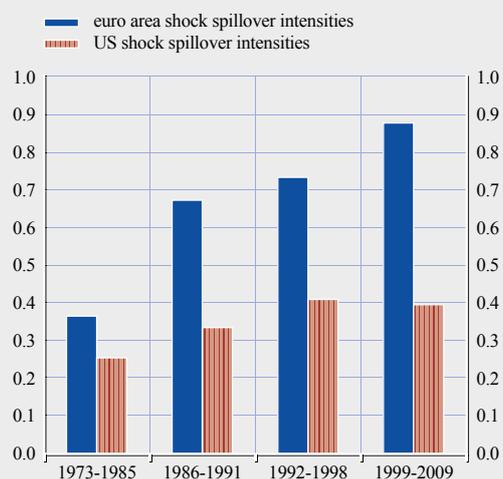
For each period, the indicators report the unweighted average of the relative importance of euro area-wide factors, other than US equity market fluctuations, for the variance of individual euro area countries' equity market indices (the "variance ratio"), and the unweighted average of the relative importance 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.

Chart C14 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

⁵ See L. Baele, A. Ferrando, P. Hördahl, E. Krylova and C. Monnet, "Measuring financial integration in the euro area", *Occasional Paper Series*, No 14, ECB, April 2004, pp. 19-21.

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, $\varepsilon_{c,t}$.⁶ 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 ($\varepsilon_{us,t}$):

$$\varepsilon_{c,t} = e_{c,t} + \beta^{eu} \varepsilon_{eu,t} + \beta^{us} \varepsilon_{us,t} \quad (8)$$

where β 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 1999-2008.

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 attributable to local news.

QUANTITY-BASED INDICATORS

Chart C15 The degree of cross-border holdings of equity issued by euro area residents



Source: ECB.

Description

This indicator measures the degree of cross-border holdings of equity securities among euro area Member States.

Intra-euro area is defined as the share of equity issued by euro area residents and held by other euro area residents (excluding central banks):

$$\frac{\sum_i \sum_{j \neq i} Outstock_{ij,t}}{\sum_i MKT_{i,t} + \sum_i TOutstock_{i,t} - \sum_i TInstock_{i,t}} \quad i, j \in \{euro\ area\ countries\} \quad (9)$$

where $Outstock_{ij}$ denotes the value of equity issued by residents of euro area Member State i and held by residents of euro area Member State j ($i \neq j$); MKT stands for stock market capitalisation in country i ; $TOutstock_i$ is the total foreign equity held by country i and $TInstock_i$ is the total foreign liabilities of country i .

⁶ 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.

Extra-euro area is defined as the share of euro area equity held by non-residents of the euro area (excluding central banks). The measure takes the following form:

$$\frac{\sum_i \sum_r Outstock_{ir,t}}{\sum_r MKT_{r,t} + \sum_r TOutstock_{r,t} - \sum_r TInstock_{r,t}}$$

$i \in \{\text{euro area countries}\}$
 $r \in \{\text{rest of the world}\}$

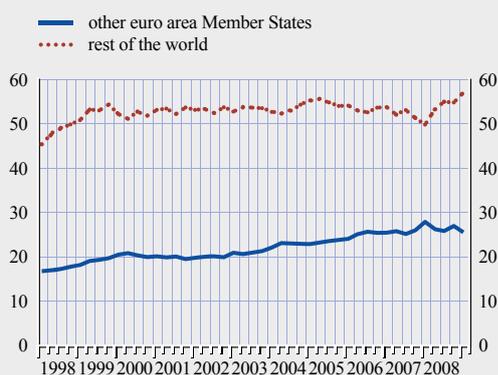
(10)

where $Outstock_{ir}$ denotes the value of equity 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 equity held by country r and $TInstock_r$ is the total foreign liabilities of country r .

The computed indicator has an annual frequency.

Chart C16 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 residents of the rest of the world. The composition of the two areas is

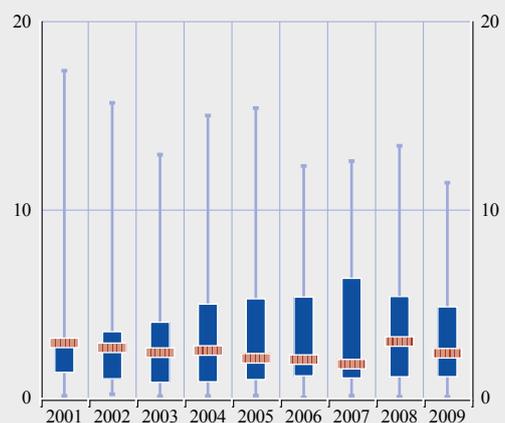
the one prevailing during the reference period. The indicator has a quarterly frequency.

BANKING MARKET INDICATORS

CROSS-BORDER PRESENCE INDICATORS

Chart C17 Dispersion of the total assets of euro area bank branches across euro area countries

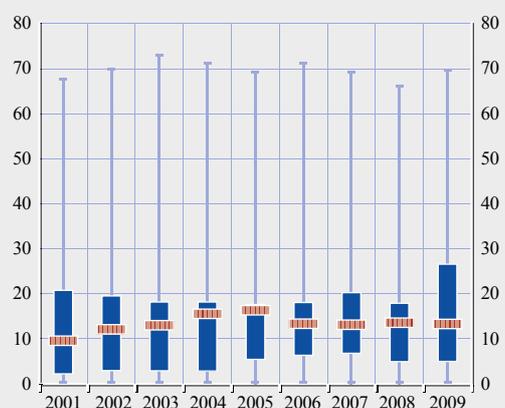
(percentage of the total assets of the euro area banking sector)



Source: ECB.

Chart C18 Dispersion of the total assets of euro area bank subsidiaries across euro area countries

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



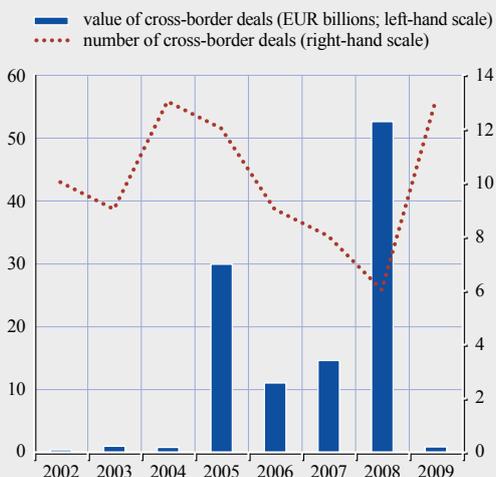
Source: ECB.

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. 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.

Chart C19 Euro area cross-border bank M&A activity

(value of intra euro area cross-border M&A and absolute numbers)



Sources: Bureau van Dijk (Zephyr database) and ECB calculations.

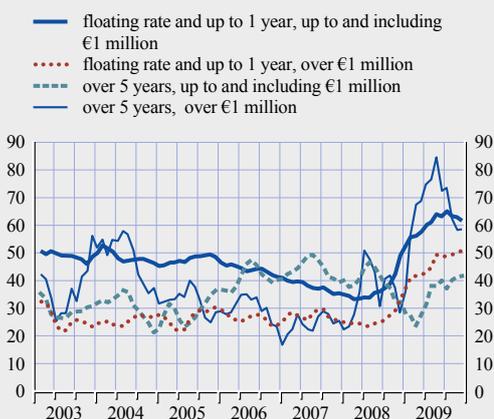
Description

This indicator shows the value of the euro area bank M&A activity as a further measure of the degree of cross-border integration of euro area banking markets. The number of deals is also displayed.

PRICE-BASED INDICATORS

Chart C20 Cross-country standard deviation of MFI interest rates on loans to non-financial corporations

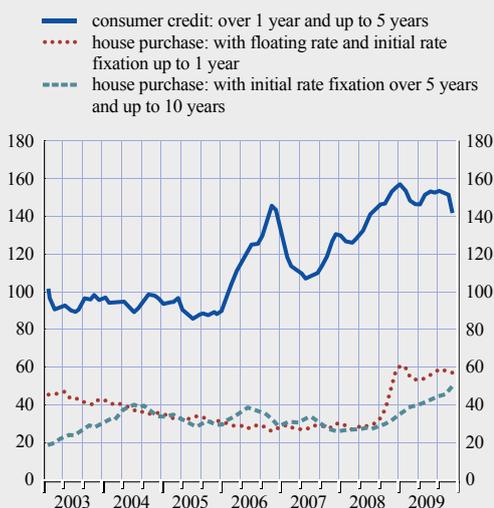
(basis points)



Source: ECB.

Chart C21 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 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 or deposits:

$r_{c,t}$ = 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 MFI interest rates in the euro area are computed as the weighted average of country interest rates $r_{c,t}$, taking the country weights $w_{c,t}$

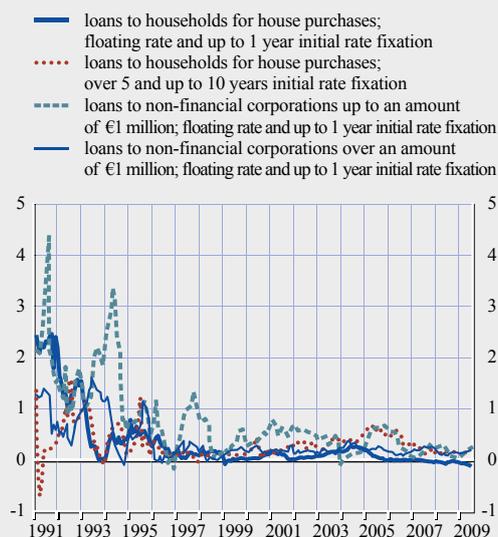
$$r_t = \sum_c w_{c,t} r_{c,t} \quad (11)$$

The euro area weighted standard deviation takes the following form:

$$M_t = \sqrt{\sum_c (r_{c,t} - r_t)^2 w_{c,t}} \quad (12)$$

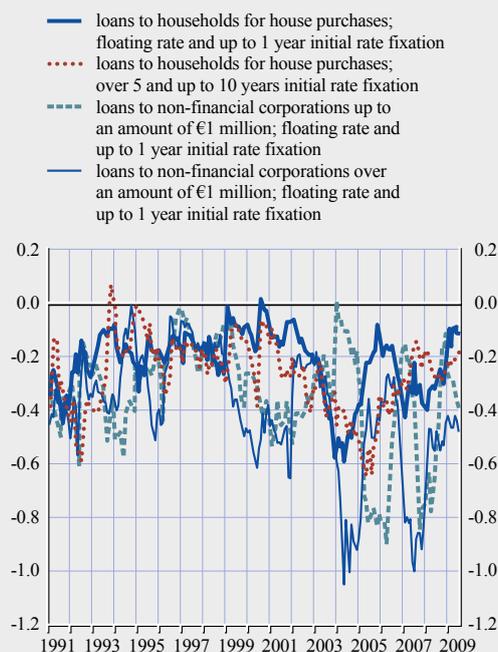
The monthly data are smoothed by calculating a three-month centred moving average of the standard deviation.

Chart C22 Intercept convergence for selected banking retail interest rates



Source: ECB.

Chart C23 Beta convergence for selected banking retail interest rates



Source: ECB.

Description

The two indicators are based on the MFI interest rates 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:

$$\Delta Spr_{i,t} = \alpha_i + \beta Spr_{i,t-1} + \sum_{l=1}^L \gamma_l \Delta Spr_{i,t-l} + \varepsilon_{i,t} \quad (13)$$

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 (α_i). A negative β coefficient signals that convergence is taking place. Furthermore, the negative β indicates that high spreads have a tendency to decrease more rapidly than low spreads. The size of β 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 (α_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 β_t is then obtained.

The model-based indicator has a monthly frequency.

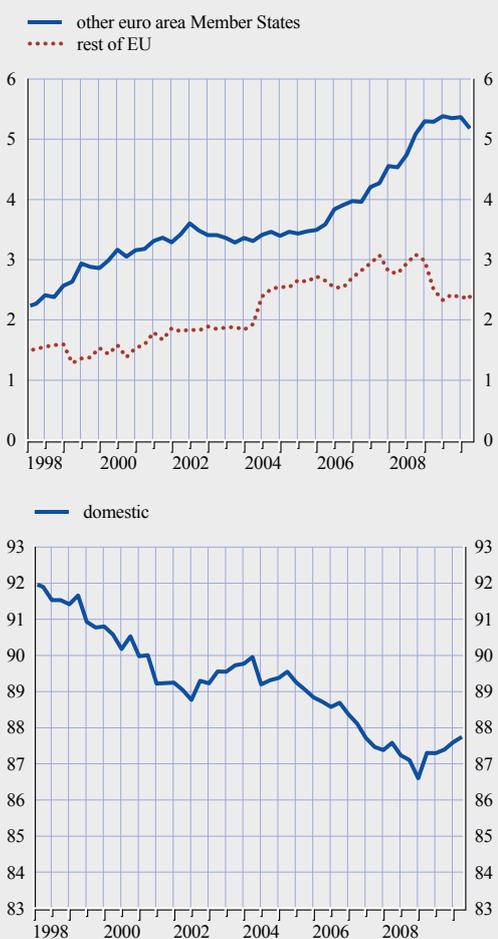
Additional information

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 C24 MFI loans to non-MFIs: outstanding amounts by residency of the counterparty

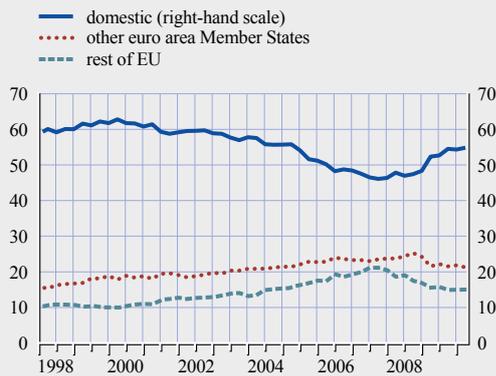
(share of total loans granted by MFIs, excluding the Eurosystem; percentages)



Source: ECB.

Chart C25 MFI loans to MFIs: outstanding amounts by residency of the counterparty

(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.⁵ The indicators have a quarterly frequency.

Additional information

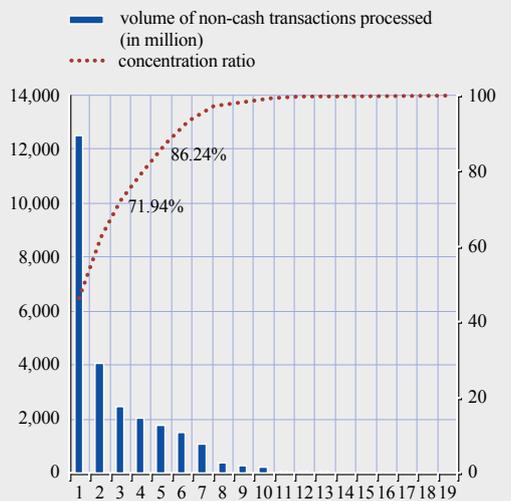
These indicators are built on the basis of the national aggregated MFI balance sheet statistics reported to the European Commission, at a monthly and quarterly frequency.⁶

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.

INFRASTRUCTURE INDICATORS FOR RETAIL PAYMENT SYSTEMS

Chart C26 Concentration ratio of retail payment infrastructures in the euro area (2008)

x-axis: number of retail payment systems in the euro area (by size)
y-axis: volume of transactions (in million; left-hand scale)
y-axis: concentration ratio (in percentage; right-hand scale)



Source: ECB.

Description

This indicator is a concentration ratio of retail payment infrastructures in the euro area in 2008 and shows the number of transactions processed by retail payment infrastructures and the cumulative share of the processed volumes. In 2008 there were 19 retail payment infrastructures located in the euro area. The three largest ones processed in total 72% of the total market volume. The figure increases to 86% for the five largest infrastructures. The five smallest infrastructures processed altogether only 0.04% of the total market transactions volume.

Additional information

This indicator is based on the information reported in the ECB Payments Statistics.

Chart C27 Credit Transfer transactions processed in SEPA format

(percentage of total transactions)



Source: ECB.

Description

This indicator presents, on a monthly basis, the share of euro area SEPA Credit Transfer (SCT) transactions as a percentage of the total volume of all credit transfer transactions (i.e. credit transfers in “old” format as well as SCT) processed by the infrastructures, namely clearing and settlement mechanisms (CSMs) located in the euro area. The indicator does not include “on-us” transactions (i.e. credit transfers between accounts at the same bank) or transactions cleared between banks bilaterally or via correspondent banking. Nevertheless, focusing on the transactions processed by CSMs provides a good approximation of the SCT usage within SEPA.

The higher the value of the indicator, the higher the usage of the SEPA product. A value of 100% would indicate that only SEPA products are used and have fully replaced the non-SEPA instruments (i.e. SEPA has been fully implemented with regard to this particular instrument) in the “bank-to-bank” domain, as measured by the CSM data.

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