EUROPEAN CENTRAL BANK

EUROSYSTEM

EUROSYSTEM OVERSIGHT REPORT 2011

APRIL 2012

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EUROSYSTEM

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ISSN 1831-5410 (online)

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PREFACE

Promoting the "smooth operation of payment systems" is a key task of the Eurosystem and the oversight function is one way in which it fulfils this mandate. Oversight thus contributes to the smooth practical implementation of monetary policy, the promotion of financial stability and maintaining confidence in the euro as the common currency. Experience shows that the oversight function is successful in achieving its goals, as illustrated by the fact that the euro area financial market infrastructures function well even in times of crisis.

In order to further increase the transparency of the Eurosystem's oversight function and the oversight activities performed, the Eurosystem published the first Eurosystem Oversight Report in November 2009.[1] The second report describes recent oversight developments and activities, covering the time period between late summer 2009 and late summer 2011.

The second report provides updates of the oversight-related matters described in more detail in the first, such as the institutional framework. Compared to the first oversight report, the focus is more on ongoing oversight activities. It also presents three special articles in which oversight-related matters and activities are comprehensively described.

The report contains numerous technical terms that may not all be familiar to all readers. A short description of their meaning can be found in the Eurosystem's "Glossary of terms related to payment, clearing and settlement systems" which is available on the internet.[2]

1 http://www.ecb.int/pub/pdf/other/eurosystemoversightreport200911en.pdf
2 See the "Payments and Markets" section of the ECB's website (http://www.ecb.europa.eu).

EXECUTIVE SUMMARY

The Eurosystem Oversight Report 2011 describes the basis of the Eurosystem's oversight function and recent changes (Chapter 1), as well as the main oversight activities conducted since the publication of the previous oversight report at the end of 2009 (Chapter 2). It also provides a brief outlook as to upcoming oversight activities (Chapter 3). In addition, specific oversight-related matters and activities are presented more extensively in three special articles (Chapter 4). The report concludes with a list of references where further relevant oversight information can be found, along with statistical data of overseen entities (annexes).

Chapter 1: The Eurosystem's oversight function

The legal basis for the oversight function – enshrined in the Treaty on the Functioning of the European Union and the Protocol on the Statute of the European System of Central Banks (ESCB) and of the European Central Bank (ECB) – has not changed since the previous report. However, the Eurosystem has further developed its oversight policies. In an update of the Eurosystem oversight policy framework in July 2011, the Eurosystem, inter alia, stated that trade repositories (TRs) were to be included in the scope of oversight. Furthermore, as the oversight function is influenced by other laws and regulations relating to payment, clearing and settlement, the Eurosystem follows and gives opinions on pertinent legislative activities. Currently, the European Commission is preparing a number of draft regulations that are of interest for the oversight function, e.g. the regulation on European market infrastructures (EMIR) and the regulation on central securities depositories (CSDR).

Regarding oversight standards, the Eurosystem developed new oversight frameworks for both credit transfer schemes and direct debit schemes in the reporting period. These new frameworks were published in October 2010. At global level, a number of Eurosystem central banks are currently deeply involved in developing new "Principles for financial market infrastructures", of which a first draft was issued for public consultation by the Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) in March 2011.

Eurosystem central banks continued to take part in cooperative oversight arrangements for a number of infrastructures, such as SWIFT and the Continuous Linked Settlement (CLS) system, in which several interested authorities commonly coordinate and conduct oversight activities. A new cooperative oversight arrangement was set up in June 2011 for the DTCC's Warehouse Trust, a TR based in the United States, in which three Eurosystem central banks participate.

Chapter 2: The Eurosystem's oversight activities

The Eurosystem's main oversight activities are establishing oversight policies (including oversight standards) and the monitoring and assessment of entities within the oversight scope to check whether they comply with the defined oversight policies.

While Chapter 1 describes existing arrangements and changes in oversight policies that have already been finalised, Chapter 2 presents changes to the oversight policies that are ongoing, such as the review of the oversight standards for retail payment systems (RPS). The standards are being reviewed in order to better reflect the increasing European dimension of some systems (i.e. by introducing a new category of RPS of European importance), and in view of the fact that the "CPSS Core Principles for systemically important payment systems" on which the requirements are based will soon be outdated. Other different oversight requirements for RPS are being developed, specifically intended to tackle issues related to links between systems.

The monitoring and assessment activities conducted in the reporting period relating to individual payment, clearing and settlement infrastructures and arrangements[3] covered the broad range of the Eurosystem's oversight scope, namely large-value and retail payment systems, correspondent banking, payment instruments, securities settlement systems (SSSs), central securities depositories (CSDs) and central counterparties (CCPs). Oversight activities were either conducted by Eurosystem central banks individually (for example, in the case of RPS), or collectively with other central banks (for the large-value payment systems TARGET2 and EURO1). Moreover, the Eurosystem cooperated with other authorities, especially securities regulators, with respect to the oversight of securities and derivatives-related infrastructures.

Chapter 3: Outlook

The Eurosystem has a full schedule as regards its oversight activities over the short to medium term.

A key task will be the review of the Eurosystem's oversight policies once the new CPSS-IOSCO principles have been finalised, while continuing to oversee infrastructures and other arrangements. Further examples of upcoming oversight activities include the first assessment of the SEPA credit transfer (SCT) and direct debit (SDD) schemes and the eighth survey on correspondent banking in euro.

Chapter 4: Special articles

The first special article, entitled "Progress in OTC derivatives market reform: a Eurosystem perspective", provides a brief overview of ongoing over-the-counter (OTC) derivatives market reforms and identifies three main priorities for central banks. These include: i) cross-border and cross-sectoral convergence of requirements for the risk management and use of OTC derivatives infrastructures, ii) central bank involvement in cooperative arrangements for OTC derivatives CCPs and TRs, and iii) availability and access to high-quality TR data in line with central bank information needs. The article underlines the high importance of OTC derivatives market reform for the Eurosystem and assesses progress, focusing on the central bank priorities identified above and specific Eurosystem considerations.

The second special article, "TARGET2 transactions: data and analysis", presents examples of analytical work conducted in the framework of the TARGET2 Simulator project. The TARGET2 Simulator was developed in 2009-10 to conduct quantitative and qualitative risk assessments on the functioning of TARGET2 based on transaction-level data. The article explains in detail the TARGET2 data used for analytical purposes and the three current lines of action. Two are aimed at a better understanding of actual payment patterns in TARGET2, i.e. timing and the network of payments. The third develops a structure to simulate the functioning of TARGET2 in order to create scenarios of extraordinary events in the system. This will enable the potential impact of such events in TARGET2 to be quantified.

The third special article, entitled "A survey on the role of technological service providers in retail payments in Italy and in Greece", presents a specific oversight activity conducted bilaterally by Banca d'Italia and the Bank of Greece. In 2009 the two national central banks (NCBs) conducted a survey which focused on the role played by technological service providers of financial intermediaries in the retail payments sector. The survey was addressed to significant samples of the two banking communities with the purpose of gaining an insight into both the role of such service providers in the retail payments sector and the perceived risks of outsourcing to them the handling of retail transactions. The survey enhanced the understanding of a relatively

3 The term "arrangement" means in this context the provision of payment, clearing and settlement services by entities other than infrastructures (such as correspondent banks), as well as sets of interbank rules, procedures and standards necessary for the functioning of payment and clearing services (such as payment instruments).

unknown segment of the payments industry; it was found that the recourse to outsourcing is more common for card payments and electronic money than for credit transfers and direct debits. Moreover, intermediaries seem to be aware of the operational risk that may arise as a result of the high recourse to and/or concentration in outsourcing but do not perceive the outsourcing of payment activities as particularly "risky".

1 THE EUROSYSTEM'S OVERSIGHT FUNCTION

1.1 INSTITUTIONAL FRAMEWORK

LEGAL BASIS

The legal basis for the Eurosystem's oversight function is laid down in the Treaty on the Functioning of the European Union and the Protocol on the Statute of the European System of Central Banks and of the European Central Bank. According to Article 127(2) of the Treaty and Article 3.1 of the Statute, one of the basic tasks of the ESCB is "to promote the smooth operation of payment systems". The Eurosystem fulfils this mandate in three different roles: as an overseer, as a catalyst for market-led change and as an operator of payment and settlement facilities.

Article 22 of the Statute (Clearing and payment systems) provides, inter alia, that "the ECB may make regulations, to ensure efficient and sound clearing and payment systems". This gives the ECB statutory powers to pursue the Eurosystem's oversight objectives. So far there has been no need for the ECB to issue specific oversight regulations as all oversight activities are performed in a cooperative manner with the overseen entities.

In addition to the European legal framework, national laws and regulations also provide a basis on which NCBs carry out their oversight activities.

IMPLEMENTATION OF THE OVERSIGHT FUNCTION

In accordance with the principle of transparency, the Eurosystem has published several documents explaining how it interprets and implements its oversight function. The most detailed description of the Eurosystem's oversight role can be found in the policy statement entitled "Eurosystem oversight policy framework", the latest version of which was released in July 2011.[4] The policy framework describes, among other things, the rationale of the Eurosystem's oversight function and the scope of oversight. The scope includes not only payment systems, but also financial market infrastructures (FMIs) such as SSSs and CCPs, as well as other clearing and settlement arrangements or entities such as correspondent banks and third-party service providers. The fact that the Eurosystem recently included TRs in its oversight scope was also reflected in the latest version of the policy framework. The policy framework explains how the oversight activities are conducted and the allocation of roles within the Eurosystem. Furthermore, it gives examples of oversight cooperation with central banks outside the euro area.

1.2 LEGAL ENVIRONMENT

The Eurosystem's oversight function is of course not only dependent on its own legal basis but is also influenced by relevant laws and regulations at European level. Often the Eurosystem is consulted on pertinent draft legislation as part of the legislative procedure and can provide its opinion – including from an oversight perspective. The following legislative proposals are of interest to the Eurosystem in its role as overseer.

THE PROPOSED EUROPEAN MARKET INFRASTRUCTURE REGULATION

On 15 September 2010 the European Commission issued a "Proposal for a Regulation of the European Parliament and of the Council on OTC derivatives, central counterparties and trade repositories".[5] The legal act will tackle the conditions of authorisation/registration, supervision/surveillance and requirements for CCPs and TRs respectively.

The ECB's opinion[6] welcomed in general this proposal, but stated that it should better reflect the statutory ESCB competencies in relation to CCPs and TRs as regards: i) their authorisation, ii) risk assessments of CCPs, iii) regulatory technical standards for CCPs and TRs, and iv) recognition of third-country CCPs and TRs.

4 http://www.ecb.europa.eu/pub/pdf/other/eurosystemoversightpolicyframework2011en.pdf
5 COM(2010) 484 final.
6 CON/2011/1.

Requirements for cooperation between supervisors and overseers, as well as central banks of issue, should also be strengthened. Concerning the relevance of CCPs' access to adequate liquidity, including central bank liquidity facilities, the ECB noted in its opinion that the decision to grant access to such facilities must remain at the independent discretion of central banks.

A comparison of the draft EMIR provisions with the draft CPSS-IOSCO principles for financial market infrastructures (see Chapter 1.3) has revealed gaps concerning key elements not covered in EMIR, as well as potential inconsistencies owing to specific EMIR requirements that do not form part of the CPSS-IOSCO principles. These are additional concerns.

The proposed regulation is subject to agreement between all legislative bodies during the co-decision procedure. The regulation is expected to be adopted towards the beginning of 2012.

THE PROPOSED REGULATION ON CENTRAL SECURITIES DEPOSITORIES

On 13 January 2011 the European Commission launched a public consultation concerning the regulation of CSDs, to which the ECB responded. A number of similarities can be expected in the approach pursued for both EMIR and the CSDR. The proposal for the CSDR will be published in early 2012. It is expected to cover authorisation, ongoing supervision, the cross-border provision of services and prudential requirements for CSDs. Particular emphasis is likely to be given to the identification of core (notary, safekeeping and settlement functions) and ancillary services (in particular the provision of credit), as well as to the definition of "operational conditions" to address risks stemming from the activities conducted by CSDs. It is anticipated that the proposals will address the issue of whether CSDs will be able to provide all such functions in the EU and the extent of a passport regime (full cross-border passport, limited passport for some services, and host country authorisation).

In addition to the licensing provisions and a framework for the supervision and oversight of CSDs, the draft regulation is expected to include minimum capital requirements, organisational requirements concerning the conduct of business and prudential requirements. The CSDR may also introduce provisions concerning access to CSDs, the issuance of securities in book-entry form, the harmonisation of settlement cycles and settlement discipline.

From the overseers' perspective, the ECB has highlighted a number of key concerns as to the recognition of the role of central banks in: i) setting technical standards for CSDs in line with the draft CPSS-IOSCO principles, and ii) the authorisation and ongoing supervision and oversight of CSDs, including recognition of third-country CSDs. The relevant provisions of the draft regulation must adequately reflect and be without prejudice to the statutory oversight powers of central banks.

THE PROPOSED SECURITIES LAW DIRECTIVE

The European Commission is considering a proposal for a directive to harmonise the law governing securities holding and transfers (Securities Law Directive, SLD). The aim is to dismantle the legal barriers arising from differences in national securities laws that impede efficient cross-border securities holding and settlement in the EU (Giovannini Barriers). In June 2009 and November 2010, the ECB responded to two public consultations. The ECB supports the aims of the SLD to harmonise: i) the framework for holding and transferring securities, ii) the conflict of law rules, iii) rights and obligations of account providers, and iv) rights flowing from book-entry securities. In particular, the legal harmonisation and standardisation resulting from the proposals will be beneficial to the Eurosystem collateral framework and support the efficient and safe functioning of TARGET2-Securities (T2S).

LEGISLATIVE INITIATIVES ON CLOSE-OUT NETTING

In October 2010 the European Commission began work to improve the legal framework for close-out netting having regard to the experiences of the financial crisis. The Commission is looking at two key issues in particular, namely the recognition and enforceability of close-out netting agreements, and the case for suspending enforceability in tightly prescribed circumstances in order to secure financial stability.

Close-out netting can mitigate systemic risk by sharply reducing the impact of one party's failure on its solvent, systemically important counterparties (including CCPs) and thus the risk of subsequent contagion, as also recognised in a report by the Basel Committee on Banking Supervision.[7] However, close-out netting can also raise systemic concerns, as it may hamper the effective implementation of resolution measures aimed at rescuing systemically important financial institutions. Therefore, the Commission suggested in October 2010 that there should be a provision for a temporary stay on rights to close-out netting where authorities transfer relevant contracts as part of a resolution measure and that further consideration should be given to the exercise of close-out rights in connection with early intervention measures.[8]

The ECB welcomed this initiative. An increase in certainty and clarity concerning the enforceability of close-out netting will support the Eurosystem operations relying on close-out netting and increase the safety of FMIs entering into netting arrangements with their participants.

THE SEPA END DATE REGULATION

In view of the rather unsatisfactory migration figures towards the Single Euro Payments Area (SEPA), the ECB has repeatedly drawn attention to the need for an ambitious but realistic end date for the migration to SEPA.[9] Following intense debate between the Eurosystem, the European Commission and the market, the European Commission decided in December 2010 to launch a proposal establishing common rules and standards for credit transfers and direct debits in euro, setting an end date for migration to the SCT and SDD schemes by means of an EU regulation (the SEPA end date regulation). The aim is to create an integrated market with the same basic conditions, rights and obligations for credit transfer and direct debit payment services. The ECB welcomed and supported this initiative, emphasising that until such a regulation enters into force, the SEPA project faces a serious risk of failure.[10] On 20 December 2011 an agreement was reached in the discussions between the European Parliament and the Council, implying – among other things – a migration end date for credit transfers and direct debits on 1 February 2014.

1.3 OVERSIGHT STANDARDS AND REQUIREMENTS

Oversight aims at ensuring that payment, clearing and securities settlement systems are safe and efficient. It promotes financial stability, the smooth implementation of monetary policy and maintenance of public confidence in the single currency. The oversight scope is defined according to the different types of entities and instruments forming the payment and settlement landscape of the euro area. Against this background, in July 2011 the Eurosystem published an updated version of the Eurosystem oversight policy framework (see Chapter 1.1).

Oversight standards and requirements form the basis for the effective performance of oversight. They clarify overseers' expectations for the overseen entities and ensure a systematic and harmonised oversight approach across all payment, clearing and settlement systems concerned. An approach based on common standards and requirements is clear and straightforward to apply and enables the assessment results to be compared across different systems.

7 Basel Committee on Banking Supervision (2010), *Report and recommendations of the Cross-border Bank Resolution Group – final paper*, March, available on the website of the Bank for International Settlements (http://www.bis.org). "Jurisdictions should promote the use of risk mitigation techniques that reduce systemic risk and enhance the resiliency of critical financial or market functions during a crisis or resolution of financial institutions. These risk mitigation techniques include enforceable netting agreements, collateralisation, […]".
8 See European Commission Communication (2010), *An EU Framework for Crisis Management in the Financial Sector*, October, p.10. http://ec.europa.eu/internal_market/bank/docs/crisis-management/framework/com2010_579_en.pdf
9 ECB (2008), *Sixth SEPA Progress Report*, November.
10 CON/2011/32.

This section outlines the main developments in the Eurosystem oversight standards and requirements.

PAYMENT SYSTEMS AND PAYMENT INSTRUMENTS

The Eurosystem applies different types of oversight standards to payment systems, depending primarily on the extent of their relevance for overall financial stability (as described in more detail in the Eurosystem Oversight Report 2009). For systemically important payment systems (SIPS), since January 2001 the Eurosystem has applied the "CPSS Core Principles for systemically important payment systems" and has developed a common Eurosystem assessment methodology for assessing systems' compliance. The Eurosystem further specified the Core Principles by issuing "Business continuity oversight expectations for systemically important payment systems" (BCOE), in June 2006. The BCOE deepens further the business continuity aspects of Core Principle VII for SIPS, in order to give guidance to SIPS operators on measures to achieve adequate levels of resilience.

In recognition of the potential systemic relevance of retail payment systems, in June 2003 the Eurosystem stated in its "Oversight standards for euro retail payment systems"[11] that euro RPS should comply with adjusted sets of standards for SIPS, depending on their systemic relevance. The standards are currently being reviewed and additional oversight expectations for links between RPS are under development (see Chapter 2.1).

Payment instruments are an essential part of payment systems. Although neither the provision nor the use of payment instruments is typically associated with systemic risk, their safety and efficiency are important for maintaining confidence in the currency and promoting an efficient economy. The Eurosystem has therefore developed oversight standards for some of the payment instruments used in the euro area. In January 2008 the Eurosystem published its "Oversight framework for card payment schemes – standards",[12] which lays down common oversight standards for card payment schemes operating in the euro area. The development of SEPA has further underlined the importance of common safe and efficient standards not only for cards, but also for credit transfers, direct debits and other types of payment instruments used across the euro area. Thus, the Eurosystem has adopted a generalised approach for the oversight of payment instruments, the "Harmonised oversight approach and oversight standards for payment instruments", published in February 2009.[13] It then published a minimum set of common oversight standards for SDDs and SCTs respectively in October 2010, the "Oversight framework for direct debit schemes" and the "Oversight framework for credit transfer schemes". Moreover, the Eurosystem has initiated a review of the oversight standards for e-money schemes (see Chapter 2.1).

SECURITIES CLEARING AND SETTLEMENT SYSTEMS

The Eurosystem, together with the other NCBs of the ESCB and in cooperation with the European Committee of Securities Regulators (CESR), has developed non-binding recommendations addressed to public authorities, aiming to create a level playing field for providers of SSSs and CCPs in Europe and to promote consistency of the respective oversight policies and activities. The ESCB-CESR "Recommendations for securities settlement systems and recommendations for central counterparties in the European Union" were published in May 2009.

Gradually, oversight concerns have extended to cover market infrastructures for derivatives markets, in particular OTC derivatives markets. OTC derivatives account for a significant part of all derivatives, and their use is increasing. Given that the majority of clearing and settlement of OTC derivatives is still organised

11 http://www.ecb.int/pub/pdf/other/retailpsoversightstandardsen.pdf
12 http://www.ecb.int/pub/pdf/other/oversightfwcardpaymentsss200801en.pdf
13 http://www.ecb.int/pub/pdf/other/harmonisedoversightpaymentinstruments2009en.pdf

on a bilateral basis, the recent turbulence in financial markets boosted the initiatives to develop the respective market infrastructures, including through the wider adoption of CCP clearing for standardised OTC derivatives. These initiatives gained strong political support, namely from the Group of Twenty (G20). Against this background, it is important to ensure that recommendations for CCPs also adequately capture the specific risks inherent to the clearing of OTC derivatives and ensure a level playing field for different clearing service providers. Within the EU, this has already been achieved with the adoption of the ESCB-CESR Recommendations for central counterparties, while efforts to promote a consistent approach also at global level are underway. (See also the first special article in Chapter 4.)

TARGET2-SECURITIES

Financial market infrastructures frequently rely on third-party service providers who are critical to the functioning of payment and settlement systems. For the Eurosystem, the individual systems using third-party service providers must remain fully compliant with the applicable oversight policies. This is the case for T2S, which is currently being developed by the Eurosystem to provide a single, borderless core securities settlement process by offering cross-border services to euro area and non-euro area CSDs and central banks.

In view of the expected scope of its activities, T2S will be a critical service provider to CSDs and central banks. The Eurosystem will oversee T2S services and will cooperate with competent overseers and supervisors of CSDs, as well as central banks of issue for eligible currencies other than the euro, in sharing comprehensive T2S-related information where relevant to facilitate the exercise of their statutory duties under the respective legal framework.

NEW CPSS-IOSCO PRINCIPLES

In March 2011 the CPSS and IOSCO issued the "Principles for financial market infrastructures – consultative report". It integrates and updates the previous CPSS Core Principles for systemically important payment systems (2001), as well as the CPSS-IOSCO Recommendations for securities settlement systems (2001) and Recommendations for central counterparties (2004).

The new single set of principles, when finalised, will promote greater consistency in the oversight and regulation of FMIs. It reflects lessons drawn from the recent financial crisis, as well as experience of the more normal operation of such infrastructures since the current standards were adopted. Compared with the current standards, the new principles are likely to introduce more demanding requirements for participant default arrangements, the management of liquidity risk, operational risk and risks arising from links and interdependencies. In addition, the principles will address some issues not yet fully covered by current standards, such as segregation and portability, tiered participation and general business risk. In addition, TRs are expressly recognised as a new category of FMI. The responsibilities of central banks, market regulators and other relevant authorities for FMIs are described in detail. The publication of the final report is expected in the first half of 2012.

1.4 COOPERATIVE OVERSIGHT ARRANGEMENTS

As set out in detail in the Eurosystem Oversight Report 2009, where more than one central bank or authority has an interest in certain infrastructures, cooperation in the oversight of such infrastructures is useful and sometimes necessary in order for the central bank or authority to fulfil its statutory responsibilities.

The following section describes the main examples of Eurosystem central bank involvement in cooperative oversight arrangements.

CLS

The CLS system provides a multi-currency service for the synchronous, i.e. payment-versus-payment (PvP), settlement of payment instructions involving foreign exchange transactions with immediate finality. Today CLS settles payment transactions related to 17 eligible currencies. CLS is provided and operated by CLS Bank International, which is incorporated in New York. Thus CLS is regulated and supervised by the US Federal Reserve System.

Given its multi-currency nature, CLS is subject to a cooperative oversight arrangement (the "Protocol"[14]) which was endorsed in November 2008 by the Group of Ten (G10) central banks and other central banks of issue of CLS-settled currencies whereby the Federal Reserve acts as primary overseer. The Protocol provides a mechanism for cooperating central banks to carry out their individual oversight responsibilities in pursuit of the shared public policy objectives of the safety and efficiency of payment and settlement systems and the stability of the financial system.

Under the Protocol, the primary forum for the cooperating central banks is the CLS Oversight Committee, chaired by the Federal Reserve. The Eurosystem is represented in the Committee by the ECB, which is the central bank with primary oversight responsibility for the settlement of the euro by CLS, as well as by the other G10 euro area NCBs, i.e. the Nationale Bank van België/Banque Nationale de Belgique (NBB), Deutsche Bundesbank, Banque de France, Banca d'Italia and De Nederlandsche Bank.

Through participation in the Committee, the Eurosystem contributes to the review of CLS compliance with international oversight standards, such as the CPSS Core Principles for SIPS, and of any envisaged changes or strategic initiatives that may affect CLS compliance (including the extension of current services to new currencies or the introduction of new services).

EUROPEAN MULTILATERAL CLEARING FACILITY

On a national basis, the Dutch central bank (De Nederlandsche Bank – DNB) and the Dutch securities regulator (the Financial Markets Authority, AFM) work closely together with respect to the supervision and oversight of the European Multilateral Clearing Facility NV (EMCF). More precisely, DNB and the AFM act as the joint overseer, which means that all assessments are made on a joint basis. In a cross-border context, they cooperate with the different authorities of the markets in which the EMCF clears.[15] DNB and the AFM have signed Memoranda of Understanding (MoUs) with all the relevant authorities in which they agree, inter alia, to share information.

Although supervision and oversight are carried out by DNB and the AFM as joint lead overseer (being the authorities of the home country market), all findings of assessments and other issues that concern the EMCF and which might be of interest are shared with other relevant authorities. This is mostly done through conference calls. The frequency of these calls can vary from weekly (for instance with the UK Financial Services Authority (FSA) and in situations with many new developments) to once per quarter (with the Nordic countries and where the aim is usually just to share information). As for interoperability (links between CCPs), a separate meeting structure is in place whereby, in principle, once every two weeks a conference call is scheduled with DNB, the AFM, the FSA, the Swiss National Bank and the Swiss Financial Market Supervisory Authority FINMA, and meetings are held every now and then.

EUROCLEAR

Euroclear SA/NV is the Belgium-based parent company of the Euroclear group which comprises

14 The Protocol for the Cooperative Oversight arrangement of CLS is available on the Federal Reserve Board's website and can be accessed via the link: http://www.federalreserve.gov/paymentsystems/cls_protocol.htm

15 The authorities concerned are as follows: the UK Financial Services Authority; the Swiss National Bank; the Swiss Financial Market Supervisory Authority FINMA; the Hungarian Financial Supervisory Authority; Sveriges Riksbank; the Swedish Finansinspektionen; the Financial Supervisory Authority – Iceland (FME); the Central Bank of Iceland, Sedlabanki; the Finnish Finanssivalvonta; Suomen Pankki – Finlands Bank; the Danish Finanstilsynet; and Danmarks Nationalbank.

the international CSD Euroclear Bank, as well as national CSDs Euroclear Belgium, France, Netherlands, UK and Ireland, Sweden and Finland. It owns the securities processing platforms and provides various common services to the national CSDs. While the oversight and supervision of the national CSDs remain the responsibility of each competent authority under their national regulatory framework, an international cooperative agreement has been set up by those same authorities with a view to coordinating regulatory efforts relating to the common services delivered by Euroclear SA/NV to the CSDs of the group. The Belgian central bank, the NBB, is in charge of coordinating this multilateral cooperation process. However, the MoU signed between the authorities is to be updated to take into account changes in the regulatory landscape in Belgium, namely the adoption of a "twin peaks" model in April 2011. Under the new model, the NBB is in charge of prudential supervision and oversight, while a new entity, the Financial Services and Markets Authority (FSMA) regulates the financial markets.

Since the launch of the integrated Euroclear Settlement of Euronext-zone Securities (ESES) platform for Euroclear France, Euroclear Netherlands and Euroclear Belgium in January 2009, the authorities of these three countries have adopted "working principles" for close cooperation in the oversight and supervision of ESES matters. In the first quarter of 2011 the ESES CSDs further integrated their operating arrangements, implementing a more functionally-oriented operations management framework across the ESES CSDs. This includes outsourcing the Euroclear Belgium and Euroclear Netherlands settlement services' operations to Euroclear France. As regards the outsourcing aspects, the Belgian and French authorities have concluded an MoU governing supervisory and oversight cooperation and the exchange of information.

LCH.CLEARNET SA

LCH.Clearnet SA, incorporated in France, forms part of the LCH.Clearnet group, which also includes the UK-based LCH.Clearnet Ltd. The business model of LCH.Clearnet SA is based on a multi-product cross-border strategy, focusing on CCP services for financial instruments traded on the Euronext markets in Belgium, France, the Netherlands and Portugal. LCH.Clearnet SA has also been active on the Italian regulated market for government bonds MTS Italy since 2002, on the multilateral trading facility (MTF) BrokerTec Italy for Italian debt securities since 2006, and clearing Spanish government debt since end-2010. In addition, LCH.Clearnet SA has provided clearing services to the Bourse de Luxembourg as well as, more recently, to several electronic trading platforms, such as Smartpool (in the United Kingdom) and Equiduct (in Germany). In March 2010 LCH.Clearnet SA started clearing credit default swaps (CDSs). This growing international activity has led to a cooperative oversight arrangement between the competent authorities. For its international activities on the Euronext markets in Belgium, France, the Netherlands and Portugal, LCH.Clearnet SA is supervised by the relevant French authorities (i.e. the Autorité de Contrôle Prudentiel as supervisor, the Autorité des Marchés Financiers as regulator and the Banque de France as overseer), and by the Belgian (the NBB and the FSMA), Dutch (DNB and the AFM), and, since 2003, Portuguese (the Banco de Portugal and the Securities Market Commission) authorities. The cooperation of these authorities in overseeing LCH.Clearnet SA is based on an MoU signed in 2001 and the work of the Coordination Committee on Clearing (CCC).

The CCC, composed of a technical committee and a high-level committee comprising representatives of the authorities party to the MoU, considers all matters of relevance to the oversight and supervision of LCH.Clearnet SA. These include projects and new services, changes to its operating rules, analysis of risks and risk control measures, and assessments based on global standards. The authorities endeavour to reach common decisions relating, for example, to assessments or authorisations within the competence of each signatory authority. The CCC authorities work on an equal basis.

A Permanent Secretariat, open to all authorities wishing to take part, is organised by the Banque de France. It acts as the contact point between the various authorities and LCH.Clearnet SA for transmitting the necessary information for the oversight and supervision of the CCP. Following the constitution of LCH.Clearnet Group Ltd in 2004, an MoU was signed in 2005 between the authorities of the four countries responsible for overseeing LCH.Clearnet SA and their British counterparts, the FSA and the Bank of England. This MoU between the "Joint Regulatory Authorities" sets out the terms and conditions for cooperation between the overseers of LCH.Clearnet Group Ltd. The MoU provides a mechanism for exchanging information, developing harmonised oversight methods and assessing risk management methods and practices developed by companies in the group over time. An MoU with the Italian authorities (the Banca d'Italia and the Commissione Nazionale per le Società e la Borsa (CONSOB)) covers the link between LCH.Clearnet SA and the Italian CCP Cassa di Compensazione e Garanzia (CC&G) for the transactions carried out on MTS Italy. Finally, MoUs are currently being finalised with the competent regulatory authorities in Luxembourg and Germany in respect of the clearing activity of LCH.Clearnet SA for Euronext-listed securities traded on the Bourse de Luxembourg and on Equiduct.

A FUTURE COOPERATIVE FRAMEWORK FOR THE OVERSIGHT AND SUPERVISION OF TARGET2-SECURITIES SERVICES

T2S is a critical service provider which aims to provide a single, borderless pool of securities and a core, neutral settlement process. Information regarding the design of the operational and legal framework of T2S has been regularly published in the course of recent years. Since T2S will offer cross-border services to both euro area and non-euro area CSDs and payment infrastructures, a number of competent authorities have an interest in receiving information from T2S to enable them to fulfil their regulatory duties towards the systems using T2S services under the respective statutory rules.

At the invitation of the Eurosystem, acting as overseer of T2S, competent authorities with a legitimate interest in the smooth functioning of T2S participated in a group to exchange information and support activities related to T2S design in the development phase. The relevant competent authorities include the Eurosystem (as overseer with responsibility over T2S, a critical infrastructure), overseers of CSDs and payment infrastructures using T2S services, supervisors with competence over CSDs joining T2S and the relevant non-euro area central banks of issue for eligible currencies in T2S. The competent authorities have supported the idea of establishing a cooperative framework for the oversight and supervision of T2S services. The arrangements under discussion will not affect the statutory powers of individual competent authorities over relevant systems or enforcement of the respective rules. Once the relevant documentation for T2S is completed, work to develop the cooperative arrangements is expected to be resumed.

SWIFT

S.W.I.F.T. scrl, the Society for Worldwide Interbank Financial Telecommunication (SWIFT), is a limited liability cooperative company registered in Belgium. SWIFT supplies secure messaging services to financial institutions and market infrastructures worldwide.

Even though SWIFT is a service provider and not a payment or settlement system, it has acquired systemic relevance owing to the strong (and still growing) reliance of many systemically important market infrastructures on SWIFT and its central role in correspondent banking messaging flows.

The central banks of the G10, including the ECB, have agreed on a cooperative oversight arrangement for SWIFT. Given that SWIFT is incorporated in Belgium, the NBB acts as the lead overseer. The common understanding of overseers and SWIFT as regards the oversight objectives and corresponding activities is laid down in a protocol arrangement between the

NBB and SWIFT. The NBB has also concluded bilateral MoUs with each of the other central banks involved in the oversight of SWIFT. The SWIFT Cooperative Oversight Group (OG), composed of the G10 central banks and the ECB, is the forum through which the central banks conduct their oversight of SWIFT and, in particular, discuss oversight strategy and policies. An Executive Group of the OG raises any issues of concern with SWIFT's board and management and discusses SWIFT's strategies to respond to these issues. At the technical level, the SWIFT Technical Oversight Group meets with SWIFT management, internal audit and staff to carry out the groundwork of the oversight process. Specialised knowledge is needed to understand SWIFT's use of computer technology and information and communication technologies and the associated risks. The Technical Group draws its expertise from the pool of staff available at the cooperating central banks. It reports its findings and recommendations to the OG.

Overseers have developed a specific set of oversight principles applicable to SWIFT, which describes in detail overseers' expectations in terms of operational risk management. Oversight expectations focus on security (confidentiality, integrity, availability) and system resilience. The five High Level Expectations (HLEs) provide the framework through which overseers seek assurance that SWIFT appropriately manages risks to its operations that could otherwise threaten the smooth functioning of the international financial system. The HLEs cover the management of risks (HLE 1, Risk Identification and Management; HLE 5, Communication with Users) and the types of risk that should be managed (HLE 2, Information Security; HLE 3, Reliability and Resilience; HLE 4, Technology Planning).

In future, oversight requirements for all critical service providers (such as SWIFT) are expected to be included in the – soon to be finalised – CPSS-IOSCO principles for FMIs in order to address relevant security and safety issues.

DTCC WAREHOUSE TRUST

In June 2011 a new cooperative oversight framework was established for the Warehouse Trust Company LLC, a subsidiary of The Depository Trust & Clearing Corporation (DTCC). The Warehouse Trust is the US-based TR for the global OTC credit derivatives market. The arrangement is intended to enable the participating authorities: i) to understand the design and functioning of the Warehouse Trust as a whole, by monitoring and assessing it against applicable international standards, and ii) to support and promote the sharing of market and participant data by the Warehouse Trust with the public and other authorities, in line with their respective information needs. Three Eurosystem central banks participate in the cooperative oversight arrangement: the Deutsche Bundesbank and Banque de France (in view of major CDS market players in Germany and France and since both countries have a CDS CCP that uses the Warehouse), and the ECB (representing the Eurosystem as the central bank of issue for the euro and providing its experience in the cooperative oversight of cross-border FMIs).

2 THE EUROSYSTEM'S OVERSIGHT ACTIVITIES

2.1 ESTABLISHING OVERSIGHT POLICIES AND STANDARDS

The Eurosystem continuously assesses whether there is a need to further develop or update its oversight policies and oversight standards. For example, in 2011, the Eurosystem included TRs in its oversight scope in the light of their increasing importance for FMIs. Other important activities in the reporting period were the review of the oversight standards for retail payment systems and the development of new oversight expectations for links between retail payment systems. Some of the activities are in progress and have not yet been finalised.

TRADE REPOSITORIES

As a result of the evolution of FMIs for euro-denominated transactions, the Eurosystem's interest in TRs has also evolved. TRs are new infrastructures which have become increasingly important for ensuring a timely and comprehensive overview of OTC derivatives markets, as TRs maintain a centralised electronic record storage of transaction data. Such a centralised registry of OTC derivatives contracts provides electronic evidence of the existence of the contracts thus limiting the risk of litigation in the event one party does not fulfil its contractual obligations. Additionally, these data enable regulators, overseers and supervisors to obtain secure and centralised access to information on developments in OTC derivatives markets and any related exposures of counterparties that may impact on the stability of the financial system as a whole.

While TRs do not take financial risks themselves, their safety and soundness has become increasingly relevant for the smooth functioning of systemically relevant FMIs which rely on the reliability and continuous availability of TR data, such as CCPs and payment systems. As a result, a number of Eurosystem central banks are participating in the establishment of cooperative oversight arrangements of TRs having a global reach. A recent example of this is the approval by the Governing Council, on 7 July 2011, of the ECB's participation in the cooperative oversight arrangement for the Warehouse Trust.

RETAIL PAYMENT SYSTEMS

In 2003 the Eurosystem released "Oversight standards for euro retail payment systems"[16] which define oversight requirements for RPS in the euro area. The standards provide indicators for classifying RPS into three categories: systems of systemic importance, prominent importance (PIRPS), and other systems. The systems must comply with different oversight requirements depending on the category to which they belong (see the Eurosystem Oversight Report 2009).

In order to reflect new developments, the Eurosystem has decided to review and adapt the 2003 RPS standards. First, as a result of ongoing European economic integration and, not least, the introduction of SEPA, in recent years more and more RPS have been establishing links with RPS in other EU countries and/or directly provide services in more than one country. The current classification criteria in the RPS standards – with a clear national focus – are therefore no longer appropriate for all RPS and need to be updated. Second, the basis for the defined oversight requirements of the 2003 RPS standards is the "CPSS Core Principles for SIPS" and these will soon be replaced by the CPSS-IOSCO principles for FMIs. It is therefore necessary to consider how and to what degree the new CPSS-IOSCO principles will be applied to RPS and integrate them into the reviewed RPS standards.

Current considerations of the ongoing review process include the introduction of a new (fourth) RPS category, i.e. "European RPS" which are deemed to be of European and systemic importance. For the category of "other systems", it is intended that a few basic oversight requirements, defined in the common Eurosystem oversight standards, apply in the future instead of standards defined at national level. Furthermore, a new arrangement for the collective oversight of "European RPS" will be developed which may also be applied to RPS classified in a national category that are relevant for more than one jurisdiction.

As regards the timeline of the review process for the 2003 oversight standards, it is noted that any amendments to the oversight requirements will depend on the finalisation of the CPSS-IOSCO principles and their assessment methodology. As soon as the revision of the oversight standards is finished, the Eurosystem plans to start a coordinated assessment of all euro area RPS against the revised standards. A coordinated assessment means that all Eurosystem central banks assess the systems for which they are the responsible overseer at the same time, applying the same oversight standards and the same assessment methodology. When the assessments performed by the responsible overseers are finished they are subject to a "peer review",

16 See footnote 11.

i.e. a review by other Eurosystem central bank overseers in order to ensure a high degree of consistency in the application of the common oversight standards.

PAYMENT INSTRUMENTS

SEPA credit transfer and SEPA direct debit

On the basis of the "Harmonised oversight approach and oversight standards for payment instruments"[17] published in February 2009 (see Chapter 1.3 above), the Eurosystem developed oversight frameworks for credit transfers and direct debits, which were subject to public consultation in the second half of 2009 and published in October 2010.[18] The oversight frameworks are aimed at ensuring the soundness and efficiency of SCTs and SDDs in order to maintain public confidence in these means of payment and, ultimately, in the currency thereby promoting an efficient economy.

The Eurosystem will apply the frameworks to the SCT and SDD schemes, but NCBs may also decide to apply them for the oversight of other (non-SEPA) national payment instruments if they deem this to be appropriate.

Following the publication of the oversight frameworks, the Eurosystem prepared detailed assessment methodologies and guides for the SCT and SDD schemes respectively. These will help overseers to apply the oversight standards in their assessment activities and in assigning the level of observance of the schemes with each of the standards.

E-MONEY

The Eurosystem has started a process to review the "Electronic money system security objectives according to the common criteria methodology"[19] in the light of the "Harmonised oversight approach and oversight standards for payment instruments" mentioned above. The oversight methodologies for cards, direct debits and credit transfers, as well as the E-money Directive[20] are also considered in the review process.

2.2 MONITORING AND ASSESSING

Monitoring and assessing overseen infrastructures are at the heart of the oversight function. By monitoring infrastructures, the Eurosystem's central banks gain awareness of the general performance of infrastructures (e.g. business volumes and values, operational reliability, incidents) and envisaged changes to the systems. The information gathered by monitoring is then analysed, enabling overseers to decide whether further specific assessments are necessary and whether any changes will affect compliance with oversight requirements. An ad hoc assessment of infrastructures against applicable oversight standards often takes place when a system plans changes to its design or when it launches new services. Such ad hoc assessments might only assess compliance with subsets of oversight requirements, depending on the changes in question. In addition, overseers periodically conduct fully fledged assessments to ensure that the overseen infrastructures are in compliance with the applicable oversight standards.

This section presents a detailed overview of infrastructures that have been subject to oversight by the Eurosystem as a whole or by individual central banks, and the oversight activities performed in the reporting period. According to the Eurosystem's oversight policy framework, for the purpose of conducting oversight of individual systems, including the collection of information, the assessment of the information and possible measures aimed at inducing change, the Eurosystem assigns a leading role to the central bank that is best placed to do so. In practice most infrastructures are overseen by individual

17 See footnote 13.

18 http://www.ecb.int/pub/pdf/other/oversightframeworkcredittransferschemes2010en.pdf?e876ed0463b90dc505be5254076f82be
http://www.ecb.int/pub/pdf/other/oversightframeworkdirectdebitschemes2010en.pdf?8b5826c3b605671cc48a484b010a9dab

19 http://www.ecb.int/pub/pdf/other/emoneysecurity200305en.pdf

20 Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC.

NCBs applying common Eurosystem oversight policies. Others are overseen by the ECB, often in cooperation with other central banks.

2.2.1 LARGE-VALUE PAYMENT SYSTEMS

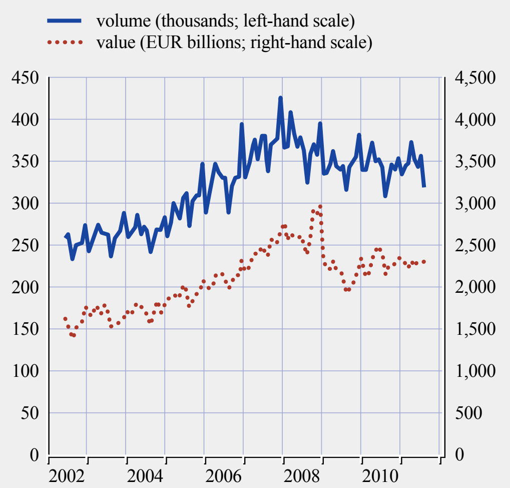
2.2.1.1 TARGET2

Given the size of TARGET2 (its turnover in 2010 was 48.31 times the size of euro area GDP) and very high systemic relevance, the Eurosystem closely monitors its functioning and continuously assesses its safety and efficiency. Apart from carrying out regular analyses of statistical indicators and incidents as well as the risk situation, the oversight function encompasses the conduct of comprehensive assessments against international standards and ad hoc assessments of changes to the system.

Core Principles for systemically important payment systems

Since the publication, in May 2009, of the final oversight assessment of TARGET2 against the "CPSS Core Principles for systemically important payment systems", the Eurosystem oversight function[21] has monitored the implementation of a few oversight findings, which required further action on the part of the system operator. The overall conclusion of the assessment, however, was that the design of TARGET2 observes the CPSS Core Principles for SIPS.

Chart 1 Average daily volumes and values settled by TARGET



Source: ECB.

Business Continuity Oversight Expectations

In September 2010 the Eurosystem oversight function finalised the assessment of TARGET2 against the BCOE. The conclusion was that the business continuity framework is in general well established and ensures a sufficiently high and consistent level of resilience. A number of oversight recommendations were issued to the operator and their implementation is being monitored.

TARGET2 releases

Since 2009 the TARGET2 operator has implemented three releases which introduced several changes to the system. Although most of them were minor, they eliminated certain weaknesses in the system and resulted in better services for TARGET2 customers. The most significant change was the introduction of internet-based access to TARGET2, which is an alternative connection mode to the Single Shared Platform (SSP). It offers direct access to the main TARGET2 services without requiring a fully fledged connection to the SWIFT network. Internet-based access is particularly intended to meet the needs of small and medium-sized banks and is not available, e.g. for the connection of ancillary systems to TARGET2. All TARGET2 releases and, in particular, the implementation of major changes are followed by the Eurosystem as part of its oversight function. The oversight assessments of all three releases concluded that none of the changes would adversely affect TARGET2 compliance with the CPSS Core Principles for SIPS. However, a few recommendations were issued to the operator, which are being followed.

New members

Three new countries have successfully joined TARGET2: Slovakia in January 2009, Bulgaria in February 2010 and Romania in July 2011.

21 The oversight of TARGET2 is led and coordinated by the ECB in close cooperation with the participating central banks.

The connection processes were monitored by TARGET2 overseers and no issues of concern were identified. All three connections were conducted smoothly.

Proprietary home accounting applications

In the course of 2009 the NBB and Banco de Portugal phased out the domestic proprietary home accounting (PHA) applications and moved the PHA activities to the SSP. Lietuvos bankas, Narodowy Bank Polski and Oesterreichische Nationalbank phased out their PHAs in November 2011. The closure of the last remaining PHA, i.e. that of Deutsche Bundesbank, which is only used for the settlement of monetary policy operations, has been postponed until 2013. Both the migration to the SSP and the functioning of PHAs are overseen by the respective NCBs.

TARGET2 Simulator

The TARGET2 Simulator was implemented in 2010 in order to conduct quantitative and qualitative risk assessments on the functioning of the system. The main objective of the project is to analyse the system's behaviour in stress situations. The TARGET2 Simulator is located on a virtual platform within the SSP and data are extracted from the TARGET2 data warehouse. For the first results of the TARGET2 Simulator analyses, please see the second special article in Chapter 4.

2.2.1.2 EURO1

The euro payment system of EBA CLEARING (EURO1) is a key payment infrastructure for the processing of large-value payment transactions in euro. EURO1 is owned by its participants, which are major European and international banks.

In 2010 the ECB, together with Banca d'Italia, assessed one major change to EURO1, namely the migration of the EURO1 end-of-day settlement process from the FIN-based Participant Interface to the XML-based Ancillary System Interface (ASI) in TARGET2. The oversight assessment concluded that this migration would not adversely affect the compliance of EURO1 with the CPSS Core Principles for SIPS. Since 7 June 2010 EURO1 has been successfully settling its daily activities via the ASI in TARGET2.

In 2011 EBA CLEARING implemented additional changes regarding the functionality of EURO1. In particular, two more liquidity distribution windows, at 11 a.m. CET and 12 noon CET, were introduced in May 2011. EBA CLEARING also amended the cut-off time for the discretionary limit from 6 p.m. CET on settlement day D-1 to 7 a.m. CET on settlement day D; reduced the mandatory limit from €5 million to €2 million; and increased the discretionary limit from €25 million to €50 million. The Eurosystem assessed all these changes to the system and concluded that they did not adversely affect the compliance of EURO1 with the CPSS Core Principles for SIPS. Moreover, the changes would be beneficial as they increase the efficiency of the system and enable the banks participating in EURO1 to react to financial market developments by taking the necessary measures to minimise their credit and liquidity risk exposure.

Summary of the EURO1 comprehensive assessment

In the light of the systemic relevance of EURO1 in the euro area payments landscape, in 2011 the Eurosystem completed its comprehensive assessment of the system against the applicable oversight standards, namely the CPSS Core Principles for SIPS. The common oversight methodology, the "Terms of reference for the oversight assessment of euro systemically and prominently important payment systems against the Core Principles", implemented by the Eurosystem in November 2007, was used by the ECB and the contributing central banks[22] in conducting the assessment.[23]

22 The assessment was carried out by the ECB, in its capacity as the primary overseer for EURO1, and five contributing central banks (Deutsche Bundesbank, Banco de España, Banque de France, Banca d'Italia and DNB).

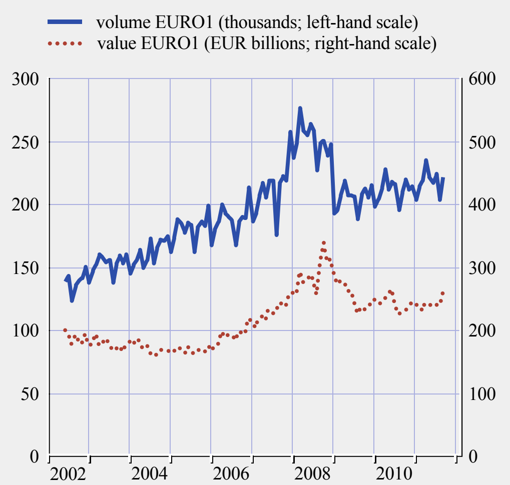
23 ECB (2007), *Terms of reference for the oversight assessment of euro systemically and prominently important payment systems against the Core Principles*, November.

Following the detailed analysis of the answers to the key questions and the supporting documentation received from EBA CLEARING, the Eurosystem concluded that EURO1 observes Core Principles I to IX, and broadly observes Core Principle X. Furthermore, with reference to some of the Core Principles, the Eurosystem identified a few areas where improvements to the system were recommended. Although these findings do not pose significant risks to the effective functioning of EURO1, the ECB, in its capacity as the primary overseer for EURO1, will continue to monitor the system and the status of the recommendations in the framework of its regular EURO1 oversight activities.

Status of the Business Continuity Oversight Expectations recommendations

In 2010 the Eurosystem published the results of its assessment of SIPS operating in the euro area against the BCOE. The conclusion for EURO1 was that all four BCOE key issues were to a very large extent adequately addressed by EBA CLEARING. The assessment found that EURO1's business continuity arrangements are well established and provide a sufficiently high and consistent level of resilience. However, the assessment also revealed a few areas requiring improvement. EBA CLEARING has since taken action and carried out the necessary amendments in order to address the Eurosystem's recommendations. In 2011 the ECB carried out a follow-up assessment on the status of BCOE compliance, which concluded that all the recommendations had been implemented. The follow-up conclusion was communicated to EBA CLEARING.

Chart 2 Average daily volumes and values processed by EURO1



Source: ECB.

Operational performance and statistics

In 2011 there were no incidents having an impact on the day-to-day availability of the EURO1 service. During the period from January to September 2011, on average 217,000 payments with a value of €241 billion were settled each day in EURO1. In comparison with the same period in 2010, the volume increased by 3% and the value decreased by 0.5%.

In terms of participation in the system, in September 2011 EURO1 had 67 participants, ten pre-fund participants and 58 sub-participants.

2.2.1.3 CLS

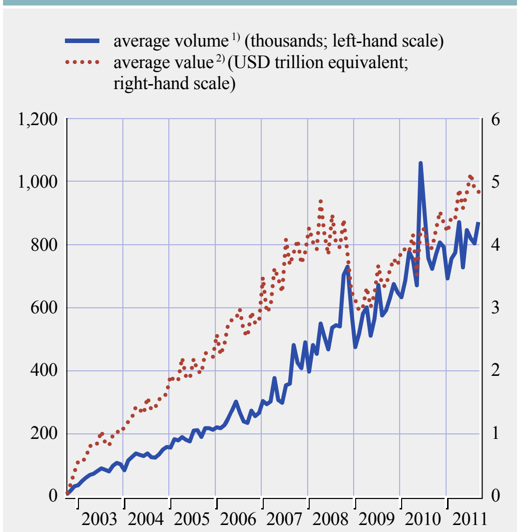
The CLS system has important financial stability implications from both a euro area and a global perspective. It is the largest infrastructure for settling payment transactions in euro outside the euro area, as well as being the payment infrastructure with the highest settlement value worldwide. Against this background, Eurosystem overseers closely monitor the development and performance of CLS within the cooperative oversight arrangement (see Chapter 1.4).

As a consequence of the financial crisis, the average daily turnover of transactions settled in CLS dropped in 2009, especially in terms of value. However, towards the end of 2010, the settlement turnover returned to pre-crisis levels and continued to grow further in 2011. Data for August 2011 show an average daily volume of transactions settled in CLS of 422,000, corresponding in value to USD 4.8 trillion. The daily average value had reached a peak in June 2011 at USD 5.1 trillion. The euro, with an average share of 20% of all transactions settled by CLS, continues to be the second most important currency in the system, following the US dollar, which accounts for 45% of all transactions. The average daily value of CLS transactions settled in euro in 2011 (until August) was €683 billion.

In addition to its core foreign exchange business settled on a PvP basis, CLS has also provided cash settlement for non-PvP single-currency payment transactions since late 2007. These services are limited to specific financial instruments, i.e. CDSs registered in the DTCC's Trade Information Warehouse and non-deliverable forward transactions. The share of single-currency transactions (non-PvP transactions) remains small in relative terms: in the first eight months of 2011 non-PvP transactions, in terms of value, represented 0.61% of all transactions settled in CLS, irrespective of the currency of denomination. In 2011 (until August) this amounted to a daily average (calculated over a 12-month period) of about €0.2 billion.

Moreover, in January 2010, CLS started to provide an aggregation service to reduce the number of high frequency, low value forex trades and to compress them into a single aggregated

Chart 3 Average daily volumes and values of forex transactions settled by CLS



Source: CLS data.
1) Total sides settled; after splitting.
2) Total sides settled.

trade thereby, inter alia, lowering transaction processing costs for CLS members. In July 2009 a new pricing structure for settlement services was introduced with charges based on both volume and value rather than volume alone.

2.2.2 RETAIL PAYMENT SYSTEMS

As described above (see Chapter 2.1) in 2003 the Eurosystem adopted specific oversight standards for euro RPS with which the individual systems must comply, depending on their classification in terms of importance. A first coordinated assessment against these standards was carried out in the euro area in 2004-05. Although the systems are subject to the same oversight policy, it is still at the discretion of individual central banks how to perform the day-to-day oversight.

This section describes how oversight of RPS is conducted in various euro area countries. It begins with the STEP2 system which is overseen by the ECB because it has no clear national anchorage.

STEP2

STEP2 is a pan-European automated clearing house (PE-ACH) for retail payments in euro. It is managed and operated by EBA CLEARING. The STEP2 system offers the processing of different kinds of retail payments, namely SEPA-compliant transactions (SCT, SDD) and transactions to which domestic technical standards apply and for which the services are limited to the respective domestic banking community (e.g. in Italy).

The ECB is responsible for the oversight of STEP2. It classified STEP2 as a PIRPS pursuant to the Eurosystem's oversight standards for euro RPS. Consequently STEP2 must comply with six Core Principles. In the reporting period the ECB monitored the operation of STEP2 and assessed important changes to the system, including the introduction of new services. The assessments were conducted partly in cooperation with the NCBs of countries where STEP2 provides domestic services. The system's changes did not alter the level of full compliance of STEP2 with the applicable oversight standards. Daily operations were very reliable without major disruptions and only a few minor incidents led to the delayed settlement of payments. For example, incidents with respect to the optional night-time settlement of SCT transactions settled in TARGET2 affected the Finnish market in particular and led to a few hours' delay in the settlement of payments on customer accounts. STEP2 and TARGET2 operators have already agreed on amended settlement procedures to avoid such problems in the future.

The most important changes in STEP2 services in the reporting period were the launch of the new SDD schemes (both core and B2B) on 2 November 2009, the introduction of a new settlement service for Irish banks on 10 October 2011 and the termination of the STEP2 XCT Service on 5 December 2011 (last settlement day).

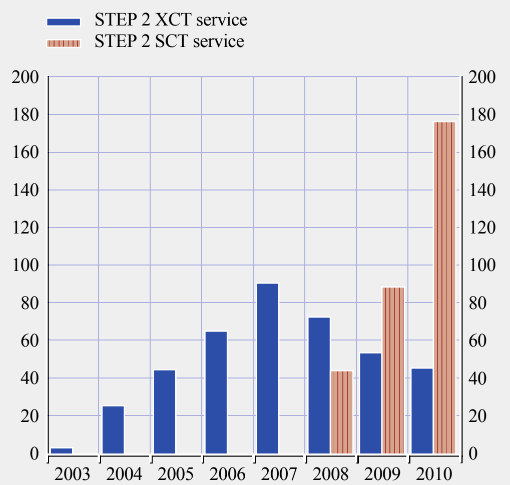
The "STEP2 Irish Service" is a STEP2 service that comprises only the settlement of payments and not clearing. Participants in the STEP2 Irish Service exchange bilateral files of payment messages (i.e. Irish legacy credit transfers and direct debits) through the Irish domestic system, which is the system of the Irish Retail Electronic Payments Clearing Company Ltd (IRECC). For all bilateral payment files sent to the other participants (in IRECC), the sending bank sends to STEP2 a file containing the information needed for settlement of the related transactions. STEP2 performs validation checks on the files sent by the bank and initiates settlement of the transactions in TARGET2. The settlement arrangements are underpinned by an obligation on participant banks to maintain sufficient funds in their TARGET2 sub-accounts to discharge payment obligations. Settlement takes place at 8 p.m. CET, with the participants' TARGET2 sub-accounts being debited or credited accordingly. Following settlement, STEP2 advises each of the participant banks of the results.

Regarding business transactions, the STEP2 SCT service is the European STEP2 service settling the highest number of transactions. In August 2011 on average more than 1.5 million transactions were processed daily with a value of nearly €6 billion.

The charts below show the recent development of volumes and values of the two European-wide STEP2 credit transfer services XCT (now closed) and SCT.

Chart 4 STEP2 XCT and SCT volume of transactions

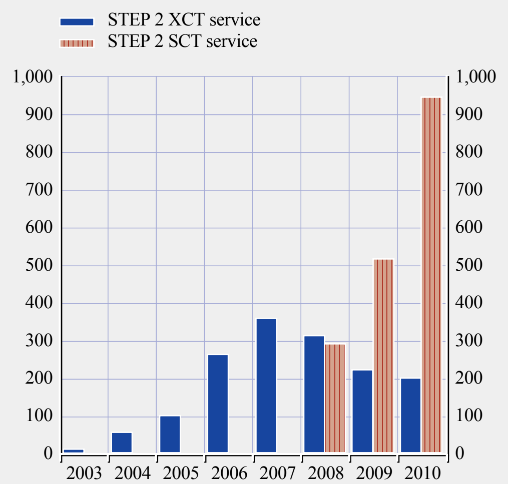
(millions)



Source: ECB.

Chart 5 STEP2 XCT and SCT value of transactions

(EUR billions)



Source: ECB.

BELGIUM

The Centre for Exchange and Clearing (CEC) is the Belgian retail payment system, owned by the Belgian banking community and operated by the NBB. It settles various payment operations such as credit transfers (national and SEPA), credit and debit card transactions, direct debits and cheques exchanged between its participants. Settlement occurs once a day on a net multilateral basis. In the classification of euro RPS according to the 2003 oversight standards, the CEC is considered as a retail system of prominent importance. Compliance with the applicable subset of CPSS Core Principles for SIPS (namely I, II, VII, VIII, IX and X) was previously assessed in 2004-05.

In 2009 the NBB focused its oversight of the system on reviewing the CEC's financial risk management mechanisms and procedures. This resulted in the recommendation that the frequency of CEC's settlement cycles should be increased in order to reduce the amounts at stake in the event of participant default. The CEC's owners and operator have agreed to implement this fundamental change in the system's design and introduce several settlement cycles per day in the CEC. The time frame for this adaptation has yet to be defined by the NBB.

GERMANY

The Deutsche Bundesbank is responsible for the oversight of Elektronischer Massenzahlungsverkehr (EMZ), the German retail payment system, which is operated by the central bank itself. This system is classified as an "other system" according to the 2003 oversight standards. As part of its national oversight activities, the Deutsche Bundesbank regularly analyses the performance of the EMZ. During 2011 no major incident occurred. The overseer also regularly participates in the meetings between the operators and the information technology (IT) department to discuss the impact of future changes and follow-up measures concerning incidents. Furthermore, it is regularly informed about new releases and their implementation status.

In 2011 the most important change in the EMZ was the migration of the settlement procedure from the PHA system to the SSP (TARGET2). This took effect for legacy retail payments on 14 November 2011 and for SEPA payments on 21 November 2011. Other than the alignment of the EMZ with the European Payment Council (EPC) Rulebooks and implementation guidelines for SCT and SDD, which came into effect on 19 November 2011, some functional improvements have been implemented. These include the harmonisation of cut-off times for submission of legacy retail payments, the introduction of two new processing cycles for SCTs and some minor changes to maintain interoperability with other clearing houses.

ESTONIA

Eesti Pank conducts the oversight of the Estonian retail payment system ESTA pursuant to its national framework on settlement systems oversight. ESTA is classified as a PIRPS in the euro area and a systemically important payment settlement system in Estonia.

ESTA has been operational since the beginning of 2002 and is operated and managed by the central bank. ESTA was developed and designed in close cooperation with the oversight and operations departments following international standards and best practices. The departments have also cooperated in upgrading the system. The main challenge for Eesti Pank currently as overseer and operator and for the Estonian banking sector as a whole is the upgrade of Estonian retail payments settlement in order to meet the requirements deriving from the implementation of SEPA.

The results of the regular, ongoing oversight of ESTA are published in Eesti Pank's Financial Stability Review twice a year.[24] There were no major incidents in ESTA in 2010. Some minor incidents reduced the level of availability of ESTA but it never fell below the acceptable availability rate of 99.4%.

24 http://www.eestipank.info/pub/en/dokumendid/publikatsioonid/seeriad/finantsvahendus/koik/

The last comprehensive oversight assessment of ESTA was conducted in 2006 against the CPSS Core Principles for SIPS and following the ECB's terms of reference that were valid at the time. It had been intended to conduct an assessment in the course of 2010 but, owing to the ongoing discussions about the future of ESTA and considering that the 2006 assessment was in principle still applicable, the assessment was postponed to after the changeover to the euro on 1 January 2011. As no concrete steps have been taken in order to upgrade ESTA, the assessment is still on hold.

IRELAND

In July 2010 the Central Bank of Ireland published its first national payments oversight report, entitled "Ireland's Payment and Securities Settlement Systems Infrastructure". The aim was to provide a comprehensive description of the role and implementation of payments and securities settlement oversight in Ireland.

A new settlement service for the settlement of domestic retail electronic payments, known as the STEP2 Irish Service, was launched in October 2011.

The new service is operated by EBA CLEARING and includes next-day value for payment transactions. Prior to its introduction, the ECB, in cooperation with the Central Bank of Ireland, conducted an oversight assessment which concluded that the STEP2 Irish Service would not have a negative impact on the compliance of STEP2 with the applicable oversight standards.

GREECE

In 2009 the Bank of Greece finalised the re-assessment of the retail payment system DIAS against the applicable CPSS Core Principles for SIPS, which had been initiated in 2008. In the period 2009-11, in the context of its ongoing oversight activities, the Bank of Greece monitored the functioning of DIAS and the Athens Clearing Office (ACO), as well as any changes to the systems. The first assessment of these RPS was performed in 2004-05, in the context of the Eurosystem's coordinated oversight assessment of euro area retail payment systems.

As the Eurosystem RPS oversight standards are currently being reviewed, both systems will be re-assessed in the context of the coordinated assessment exercise of all euro RPS against the revised standards, planned by the Eurosystem for 2012.

SPAIN

The National Electronic Clearing System (SNCE) is the Spanish retail payment system and, as such, is required to comply with the Eurosystem's "Oversight standards for euro retail payment systems". The first assessment was carried out in 2004-05, in the framework of the Eurosystem's coordinated assessment exercise. Since then, the SNCE has undergone a number of changes, most notably the transfer of its management from Banco de España to Iberpay.[25] The designation of the system under the Settlement Finality Directive,[26] its adaptation to SEPA and the approval of new regulations have also brought about significant modifications. Although Banco de España monitors and oversees the SNCE on a continuous basis, the numerous recent changes introduced and the fact that several years had passed since the last assessment meant it was appropriate to carry out a new, full assessment. This exercise started in 2010 and finished in mid-2011.

As mentioned before, the number of oversight standards with which a retail payment system must comply depends on the classification of the system. The application of the relevant thresholds in the recent exercise confirmed that the SNCE is still considered a PIRPS and has therefore retained the same category from the time of the first fully fledged assessment. As a result, the assessment focused on the subset of Core Principles that prominently

25 Iberpay is a private company owned by the credit institutions participating in the SNCE.
26 Directive 98/26/EC of 19 May 1998 on settlement finality in payment and securities settlement systems, OJ L 166, 11.6.1998, p.45-50, as amended.

important systems need to observe (namely Core Principles I, II and VII to X).

On the basis of the terms of reference developed by the Eurosystem for the assessment of payment systems against the CPSS Core Principles for SIPS, Iberpay provided Banco de España with a self-assessment. In addition, a complete set of documentation was made available which enabled the overseers to verify the accuracy of the answers and fill in any gaps. As a result of the analysis of all the documentation, it was concluded that the SNCE complies or broadly complies with all relevant Core Principles. A number of recommendations, most of them of minor importance, have been addressed to the system operator and will be acted upon.

FRANCE

CORE (COmpensation REtail) was launched in January 2008 and is operated by the private company STET. CORE is an essential component of the European retail payment market and is the number one retail payment system in Europe in terms of volume and value processed since its creation. It is designed to cover all interbank retail payment transactions in France.

CORE is considered as a retail payment system of systemic importance. In 2011 the Banque de France assessed CORE against the applicable Core Principles for SIPS. It was concluded that CORE fully observes the relevant Core Principles except for two – V and X – which are broadly observed. The Banque de France is monitoring implementation of several oversight findings which require further action from the system. In addition, as a SIPS, CORE has been assessed against the BCOE. The assessment revealed that CORE's business continuity and crisis communication arrangements are being maintained at high standards. So far, the majority of the recommendations have been implemented and the follow-up to one recommendation is still ongoing.

ITALY

Three clearing and settlement mechanisms operate in Italy: ICBPI/BI-Comp, ICCREA/BI-Comp and SIA/BI-Comp. For these systems the clearing phase is performed by private operators while the settlement phase is managed by the Banca d'Italia.

In 2010 the Banca d'Italia assessed the Italian clearing and settlement mechanisms according to a new national methodology (Oversight Guide), which focuses on the following areas of interest: governance, operating rules, and business and operational risks. The methodology ensures comparability of analysis and results and a level playing field for the overseen entities. It is also consistent with the 2003 Eurosystem oversight standards for retail payment systems. Subsequent to the evaluation process, some areas of possible improvement were identified and the overseen entities have been invited to address them.

NETHERLANDS

Equens processes financial transactions effected by means of a variety of payment products. Its services cover the entire range of the processing, clearing and settlement of non-cash and card-related transactions. Transactions are processed by the clearing and settlement systems CSS (Dutch domestic payments) and CSM (SEPA payments). The lot settlement method is characteristic of these systems and unique in Europe. It implies that payment orders submitted by participants are processed very frequently, thereby significantly reducing counterparty risk for the participants. The migration to SEPA products involves a phasing-out of the CSS in favour of the Equens CSM. In 2010 an assessment of the CSM was started as well as of the links established by Equens CSM with other clearing and settlement systems in Europe. CSS fully complies with nine of the ten standards set for retail payment systems.

In addition to the CSS and CSM, Equens also manages the Interbank Authorisation Network (also referred to as the Switch) which plays a central role in the authorisation of retail payment transactions that require the use of a PIN code. The operational reliability of the Switch is extremely important. Its failure would instantly halt all point-of-sale (POS) transactions requiring PIN verification (including the debit card scheme "PIN" widely used in the Netherlands) and all automated teller machines (ATMs), halting retail payments. An assessment of operational reliability was initiated in 2010.

PORTUGAL

SICOI (Sistema de Compensação Interbancária) is a deferred net settlement interbank clearing system for retail payments below €100,000. The Banco de Portugal is the manager and settlement agent. SICOI processes payments related to cheques, electronic funds transfers, direct debits, ATM/POS card transactions and bills of exchange. The system is based on a 24-hour online electronic processing system. The clearing and settlement process is entirely automated without any physical exchange of documents between participants. All sub-system clearing balances are settled in TARGET2. Most banks operating in Portugal are either direct or indirect participants in one or more SICOI sub-systems. SICOI started processing SCTs in 2008 and SDDs in 2010.

The last assessment of SICOI was conducted by Banco de Portugal in 2004-05 against the relevant CPSS Core Principles for SIPS.

SLOVENIA

In Slovenia, the relevant Eurosystem oversight standards have been incorporated into the Law on payment services and systems and a Regulation on payment systems issued by Banka Slovenije. Both acts are the substantive legal basis for the licensing, oversight and supervision of payment systems and their operators under the competence of Banka Slovenije.

Following a comprehensive oversight assessment in late 2009, the Slovenian prominently important payment system for processing SCTs – the SEPA IKP system operated by Bankart d.o.o. – successfully carried out a number of follow-up activities in 2010. Banka Slovenije published its final decision in April 2011 confirming that all of the issues raised in the initial assessment had been properly resolved.

In July 2011 a licence was granted for the establishment and operation of a Slovenian system for the clearing and settlement of retail payments initiated via mobile phone (the Moneta payment system).

SLOVAKIA

In 2010 Národná banka Slovenska conducted an assessment of the prominently important retail payment system EURO SIPS against the applicable CPSS Core Principles.

Since 1 January 2009 EURO SIPS has performed processing and multilateral clearing of domestic retail payments, with settlement of these transactions in TARGET2-SK.

The result of the first formal assessment of the system confirmed that EURO SIPS is fully compliant with all of the relevant Core Principles.

FINLAND

The processing of retail payments in Finland has been undergoing a profound transformation since the introduction of SEPA. A major milestone was reached at the end of 2011 when migration to the SCT scheme was completed. All interbank credit transfers are now transferred via STEP2, instead of the old domestic payment system (PMJ).

Suomen Pankki – Finlands Bank cooperates with the ECB, which is the lead overseer of STEP2. In addition, the NCB has been assessing the domestic features of the new system against the Eurosystem's oversight standards. Suomen Pankki – Finlands Bank also oversees ACH Finland, a clearing house providing services to its owner banks. The system is classified as a PIRPS, and the oversight assessment was completed in 2010. All of the Eurosystem's oversight standards for PIRPS were observed.

2.2.3 CORRESPONDENT BANKING

The oversight function of the Eurosystem focuses not only on payment systems, but also on other payment, clearing and settlement arrangements, such as correspondent banking. In order to monitor this activity, the Eurosystem carries out a biennial survey addressed to a representative sample of credit institutions. The latest survey was conducted in the first half of 2010, based on data from March 2010, and was answered by 84 banks located in 20 countries (non-euro area EU countries participated on a voluntary basis).

From the information provided by the different survey participants, it can be concluded that correspondent banking arrangements continue to be important in terms of the total number and, in particular, the value of euro transactions processed. The average size of a transaction in correspondent banking has significantly decreased since the last survey to €45,880 (-27%). This can be partly explained by the stronger effect of the financial crisis on the large-value segment of this business, more exposed to the lack of confidence stemming from the crisis. Nevertheless, the average size of a transaction in correspondent banking remains higher than the average size of retail payments (€670). In fact, some service-providing banks reported average values that are even in the range of small large-value payment systems. This circumstance, together with the fact that correspondent banking is a very concentrated activity (i.e. the largest reporting banks account for a significant share of the total reported transactions), explains the strong interest that Eurosystem overseers have in monitoring these arrangements. The next survey will be held in 2012. It is intended to focus on those correspondent banks with a daily turnover on their loro accounts exceeding €1 billion. By restricting the number of banks, the Eurosystem aims to limit the reporting costs for the banking community and, at the same time, to preserve the representativeness of the survey.

Given that correspondent banks are subject to banking supervision, cooperation between overseers and supervisors in this area is crucial to better understand the risks involved in correspondent banking and how they are managed. With that purpose, in 2009 a joint task force of overseers and banking supervisors carried out bilateral interviews with a small sample of correspondent banks, concluding that, overall, banks seem to have measures in place that adequately address the prevalent risks. In addition, it was considered that further attention needed to be focused on four areas: intraday liquidity risk, clarity and formalisation in the settlement procedures, stress-testing and monitoring measures related to concentration effects and cooperation between supervisors and overseers.

2.2.4 PAYMENT INSTRUMENTS

CARD PAYMENT SCHEMES

In the course of 2010 the individual oversight assessment reports on the compliance of domestic card payment schemes (CPSs) with the harmonised Eurosystem oversight framework[27] were finalised and submitted to a peer review.

The assessment of the four international CPSs has also progressed and is expected to be finalised in the first half of 2012. This process has undergone some delays in view of the cross-border dimension and complexity of the CPSs and because the assessment is being conducted by the same cooperative groups in parallel to the assessments of the domestic schemes.

Once completed, the Eurosystem will issue a comprehensive assessment report covering the whole CPS sector in Europe. The key findings for the sector will subsequently be published on an aggregated basis.

In any oversight assessment process, the findings for an individual overseen entity can result in recommendations being addressed to the governance authority concerned, i.e. the owner of the scheme in charge of defining organisation rules and verifying members' compliance with them. In practice, the governance authority is often requested by overseer(s) to establish an action plan in order to meet the recommendation or to demonstrate that risk mitigation is de facto achieved through other organisational features.

27 ECB (2008), *Oversight framework for card payment schemes – standards*, January.

Owing in particular to the high degree of competition prevailing in the sector, the report will not mention individual findings but instead focus on trends in the CPS sector.

2.2.5 SECURITIES SETTLEMENT SYSTEMS, CENTRAL SECURITIES DEPOSITORIES AND CENTRAL COUNTERPARTIES

In May 2009 the Eurosystem adopted, as common oversight standards, the "Recommendations for securities settlement systems and recommendations for central counterparties in the European Union", which were developed by the ESCB together with the CESR. This section describes the implementation of these common standards at national level in the euro area, as well as other oversight activities with regard to securities-related infrastructures.

With regard to the following descriptions, however, it is to be recalled that not every euro area country has individual domestic SSSs, CSDs and CCPs and that some infrastructures provide services in more than one country. Moreover, when conducting oversight activities, central banks often cooperate with other authorities that are in charge of securities regulation.

SECURITIES SETTLEMENT SYSTEMS/CENTRAL SECURITIES DEPOSITORIES

BELGIUM

In 2010 the oversight of the NBB securities settlement system mostly focused on assessing the system against the ESCB-CESR Recommendations for SSSs. The NBB SSS is the CSD for dematerialised fixed income securities in Belgium, i.e. government securities and corporate debt. The system is operated by the Securities Division of the Financial Markets Department within the NBB and provides mainly depository and securities settlement services. NBB SSS participants – more than a hundred entities, both domestic and international – can settle transactions in euro by book entry on a delivery versus payment basis. The NBB SSS holds about 2,000 different issues. To ensure a level playing field with other payment and settlement systems located in Belgium and to avoid any conflicts of interest, operational entities within the NBB, such as the Securities Division, are strictly segregated from the Oversight Unit; they are located in a different department with different reporting lines up to Board level (i.e. different Board members are responsible for oversight and operational units).

The NBB's Oversight Unit had already conducted a first assessment of the NBB SSS against the 2001 CPSS-IOSCO "Recommendations for securities settlement systems" in 2004. This assessment was updated one year later inter alia to consider a series of mitigating follow-up actions taken by the NBB SSS after the findings of the preliminary assessment. This 2005 re-assessment concluded that the system was fully compliant with fifteen CPSS-IOSCO recommendations, whereas two were "broadly observed" (Recommendations 13 and 15). Two other recommendations (Recommendations 2 on trade confirmation and 3 on settlement cycles) were considered not relevant for the NBB SSS since, under the CPSS-IOSCO standards, they dealt with aspects for which the system could not be held accountable.[28]

The 2009 ESCB-CESR Recommendations for SSSs are to a large extent based upon the CPSS-IOSCO standards; hence, the new assessment of the NBB SSS against the ESCB-CESR Recommendations conducted in 2010 constitutes an update of the previous assessment work. The conclusions of the assessment show improvement compared with the situation in 2005, in particular for Recommendation 15 on efficiency, for which the compliance level is upgraded from "broadly observed" to "observed". Recommendation 9 on CSD risk controls to address participants' failures to settle has, however, been downgraded from "observed" to "broadly observed" because the NBB SSS does not evaluate the impact on

28 This is no longer the case. It should be noted that the ESCB-CESR Recommendations 2 (Trade confirmation and settlement matching) and 3 (Settlement cycles and operating times) concern issues which are applicable to the NBB SSS.

settlement of failure by multiple participants. The specific requirements introduced by the 2009 ESCB-CESR Recommendations have not led to any downgrades.

BELGIUM, FRANCE, NETHERLANDS (Euroclear Settlement of Euronext-zone Securities)

The ESES system settles transactions executed on the Paris, Amsterdam and Brussels Euronext stock exchange cash markets besides bilaterally concluded OTC trades. The transactions are settled in central bank money on cash accounts held with the NBB, Banque de France and DNB, and operated by the respective national CSDs (Euroclear Belgium, Euroclear France and Euroclear Netherlands), which are subsidiaries of the Euroclear group holding company Euroclear SA/NV. The three ESES CSDs and SSSs share a common IT platform, harmonised settlement and custody services, and apply a harmonised pricing model. The integrated ESES solution, launched in 2009, requires strong coordination mechanisms between the CSDs. Given the unique situation of the ESES – a platform shared by three separate legal entities – the Belgian, Dutch and French central banks and market authorities have entered into a cooperative oversight arrangement. In accordance with their national competencies, however, the decision as to the compliance of each ESES SSS with the ESCB-CESR Recommendations is that of the respective central bank.

A comprehensive assessment of the ESES against the ESCB-CESR Recommendations for SSSs was completed in 2010. The ESES is overall an operationally reliable SSS infrastructure and has adequate legal frameworks and governance arrangements. The ESES achieves its efficiency targets, satisfies participants and has rules and procedures to reduce risks. Out of the 19 Recommendations, 16 are assessed as fully observed. Recommendation 4 does not apply as it deals with CCPs. Recommendation 14 on access is broadly observed for Euroclear Netherlands, as its rules do not allow admission to participants established outside a Member State of the European Economic Area (EEA). This criterion prohibits fair and open access for institutions which are not based in the EEA, especially given that this requirement is not imposed for participation in Euroclear Belgium and Euroclear France. Adaptation of the Euroclear Netherlands rules requires the approval of the Dutch Minister of Finance, on the advice of DNB and the Dutch securities regulator AFM. Recommendation 19 on the risks in cross-system links is assessed as broadly observed for Euroclear France. This assessment will be reviewed if legal opinions are submitted confirming the absence of legal risks in the cross-border links between Euroclear France and the CSDs of Spain, Germany and Italy respectively.

GERMANY

The Deutsche Bundesbank conducted, in close cooperation with the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin), an assessment of Clearstream Banking AG against the ESCB-CESR Recommendations. The assessment was completed at the end of 2011.

ITALY

In Italy, the CSD and securities settlement activities are performed by Monte Titoli, which has been part of the Borsa Italiana Group since December 2002. The Borsa Italiana Group merged with the London Stock Exchange Group in 2007.

Monte Titoli is the CSD for securities issued in Italy and has links with a number of CSDs, mostly located in the euro area, to handle foreign securities. It settles securities transactions carried out both on regulated markets and over the counter, in Italy and abroad. Monte Titoli also operates the daily matching correction system X-TRM, which manages the matching of transactions and the routing of matched transactions to the settlement services.

The Monte Titoli regulatory framework is governed by the relevant provisions of the so-called Consolidated Law on Financial

Intermediation (CLFI) and the general regulations issued by the Banca d'Italia, with the agreement of CONSOB, pursuant to the CLFI. The operating rules laid down by the CSD must be approved by the Banca d'Italia in agreement with CONSOB.

As for the supervisory framework, Monte Titoli is subject to the supervisory powers of the Banca d'Italia and CONSOB, which can request information and documentation, meet with the management and staff and carry out on-site inspections.

In performing its regulatory and supervisory tasks, the Banca d'Italia adheres strictly to the internationally agreed principles for SSSs, such as the 2001 CPSS-IOSCO Recommendations and the ESCB-CESR Recommendations.

Monte Titoli was assessed against the CPSS-IOSCO Recommendations by the International Monetary Fund (IMF) in 2004, in the context of a general Financial Sector Assessment Program for Italy. The Banca d'Italia and CONSOB participated in the assessment.

In 2010 the Banca d'Italia launched, in cooperation with CONSOB, the assessment of Monte Titoli against the ESCB-CESR Recommendations. The assessment exercise is expected to be completed by mid-2012.

LUXEMBOURG

In Luxembourg, the Banque centrale du Luxembourg is in charge of overseeing the SSSs operated by Clearstream Banking SA, VP Lux Sàrl and, since 2011, LuxCSD SA. In addition to the ongoing oversight activities, a comprehensive assessment of the system operated by Clearstream Banking SA was concluded in December 2010 in collaboration with the national securities regulator. The assessment found a high degree of system compliance with most of the applicable ESCB-CESR Recommendations for SSSs. Nevertheless, some specific areas for improvement were identified. Specific action points have been addressed to the operator and will be acted upon.

The Banque centrale du Luxembourg has also launched a similar assessment of the SSS operated by VP Lux Sàrl. The assessment will be finalised in the course of 2012.

Finally, in October 2011 the Banque centrale du Luxembourg designated the system operated by LuxCSD SA in line with the Luxembourg law implementing the Settlement Finality Directive. An assessment of the system against the ESCB-CESR Recommendations has been started.

FINLAND

In Finland, the CSD and securities settlement activities are performed by Euroclear Finland (EFi). EFi has been part of the Euroclear group since 2008, but it is a separate legal entity and subject to local regulatory requirements.

Suomen Pankki – Finlands Bank is responsible for the ongoing oversight of EFi. Regular oversight meetings are held to monitor EFi's development projects and to improve the reliability and efficiency of securities settlement in Finland. EFi is required to inform the NCB immediately of any malfunctions and other problems and to submit a detailed follow-up report. In addition, monthly statistical reporting is used to monitor EFi's reliability and performance. Furthermore, the Ministry of Finance endorses EFi's rules and regulations, after first requesting the formal opinion of the NCB.

Comprehensive assessment of Euroclear Finland against the ESCB-CESR Recommendations for SSSs has begun and will continue in 2012. The assessment is carried out in close cooperation with the Finnish financial supervisory authority (Finanssivalvonta).

Suomen Pankki – Finlands Bank also participates in the cooperative oversight of the Euroclear group.

TARGET2-SECURITIES

The Eurosystem as overseer of T2S and the other relevant authorities participating in the joint group of competent authorities[29] were unanimous that the design of T2S should be reviewed before its launch with a view to evaluating its soundness and efficiency. Such a pre-assessment was considered important to enable any necessary adaptations to be fed into the T2S design prior to its becoming operational. Moreover, competent authorities would benefit from this information when conducting their own assessments as to whether infrastructures using T2S services comply with the rules.

For that purpose, a preliminary review of the T2S design was launched in March 2010 during the development phase. The review was based on the 2009 ESCB-CESR Recommendations for SSSs, with some adaptations owing to the specificities of the T2S design. Preliminary findings and suggestions were addressed to the T2S operator to foster compliance with the relevant standards. A formal oversight assessment of T2S is envisaged when T2S becomes operational.

CENTRAL COUNTERPARTIES

BELGIUM, FRANCE, NETHERLANDS, PORTUGAL (LCH.Clearnet SA)

LCH.Clearnet SA is a French credit institution which acts as the CCP for transactions executed on the Euronext stock and derivatives exchanges in NYSE Euronext markets, including Paris, Amsterdam, Brussels and Lisbon. It is also a CCP for OTC and MTF traded bond and repo transactions and CDSs.

In 2010 the announcement of the termination of the clearing contract for cash and derivatives by NYSE Euronext, with effect from the end of 2012, constituted a major development. However, this end date for the clearing contract has been postponed under a new arrangement extending the cash equities clearing notice period until December 2013 and the derivatives clearing notice period until at least June 2013.

In 2010 LCH.Clearnet SA regulators initiated assessments of several new projects. LCH. Clearnet SA started clearing CDSs in March 2010 and Spanish government debt at the end of the year. A new clearing system for cash (Universal Clearing System, UCS) became operational in December 2010. Furthermore LCH Clearnet SA was granted ROCH (recognised overseas clearing house) status for its CDS segment in September 2011.

Regulators apply the international recommendations for CCPs when assessing the legal, operational, financial and organisational risks of new projects. The overall assessment in 2005 found that LCH.Clearnet SA was fully compliant with 13 of the 15 CPSS-IOSCO Recommendations for CCPs, with the recommendation on operational reliability being only broadly observed. On the advice of the regulators, LCH.Clearnet SA has made a number of improvements in its operational systems since 2005, thereby largely eliminating the shortcomings noted by the regulators at that time. In particular, the intraday margin calls for cash and the new clearing system UCS have been positively assessed by the competent authority. In 2010 the availability of LCH.Clearnet SA systems was 99.9% on average.

An assessment of LCH.Clearnet SA against the ESCB-CESR Recommendations for CCPs is in progress and is expected to be finalised by the first quarter of 2012.

GERMANY

In 2010 the Deutsche Bundesbank conducted, in close cooperation with BaFin, an assessment of Eurex Clearing AG against the ESCB-CESR Recommendations for CCPs. Eurex Clearing AG was also subject to scrutiny by the IMF in cooperation with the Deutsche Bundesbank/ BaFin as part of the 2010-11 IMF Financial Sector

29 The competent authorities include the Eurosystem overseers with responsibility over critical service providers such as T2S, overseers of CSDs and payment infrastructures using T2S services, supervisors of CSDs joining T2S and the relevant non-euro area central banks of issue for eligible currencies in T2S.

Assessment Program for the German financial sector. Eurex complies with both the CPSS-IOSCO and the ESCB-CESR Recommendations for CCPs.

ITALY

The only CCP incorporated in Italy is Cassa di Compensazione e Garanzia. The CC&G is controlled by Borsa Italiana, which merged with the London Stock Exchange Group in 2007.

The CC&G performs the activity of CCP on the equity and derivatives markets operated by Borsa Italiana and the regulated wholesale market for Italian government bonds managed by MTS SpA. In addition, it acts as CCP in transactions on Italian government bonds carried out on the BrokerTec market. The two latter activities are performed in cooperation with the French CCP LCH.Clearnet SA, with which the CC&G established a link in 2002.

In July 2009 the CC&G was granted ROCH status by the FSA, a prerequisite for performing post-trading services in the United Kingdom. Accordingly, since 2010, the CC&G has been providing IT management services to LCH.Clearnet Ltd for the EDX share and bond derivatives exchange of the London Stock Exchange Group.

Like Monte Titoli, the CC&G regulatory framework is governed by the relevant provisions of the CLFI and the general regulations issued by the Banca d'Italia, with the agreement of CONSOB, pursuant to the CLFI. The operating rules laid down by the CCP must be approved by the Banca d'Italia in agreement with CONSOB.

As for the supervisory framework, the CC&G is subject to the supervisory powers of the Banca d'Italia and CONSOB, which can request information and documentation, meet with CC&G management and staff, and carry out on-site inspections. With regard to cross-border activity, an MoU agreed by the Banca d'Italia and CONSOB with the French authorities covers the link between the CC&G and LCH.Clearnet SA. Another MoU, with the FSA, regulates the exchange of information and cooperation between the authorities in relation to the UK activity of the CC&G and its belonging to a UK-based group.

In performing its regulatory and supervisory responsibilities, the Banca d'Italia adheres strictly to the internationally agreed principles.

In 2008 the CC&G was assessed against the CPSS-IOSCO Recommendations for CCPs by the Banca d'Italia, in cooperation with CONSOB.

In 2010 the Banca d'Italia launched, in cooperation with CONSOB, the assessment of the CC&G against the ESCB-CESR Recommendations. The assessment exercise is expected to be completed by end-2012.

NETHERLANDS

The European Multilateral Clearing Facility NV is a Dutch organisation that acts as a CCP between trading parties. The EMCF assumes the counterparty risk of executed transactions, nets the outstanding positions of each counterparty/clearing participant and requests collateral from the clearing participants to cover the risk. The EMCF was founded four years ago and has grown at a very rapid pace: at the end of 2010 it processed approximately 3.5 million transactions per day in its role as CCP. Nevertheless, the growth of the EMCF flattened slightly in 2010. The CCP has a market share of more than 35% of transactions in European blue-chip stocks. In November 2010 the EMCF was responsible for the clearing of six trading platforms[30] and is one of the biggest players in Europe in the area of securities clearing.

In 2008 the AFM and DNB carried out a full assessment of the EMCF, based on the CPSS-IOSCO standards for CCPs. Additional assessments of all relevant changes at the EMCF have since been carried out. In 2010 the EMCF met nine of the 14 standards. One standard,

30 Chi-X Europe, BATS Europe, Burgundy, Quote MTF, NASDAQ OMX Nordic, TOM.

relating to links with other CCPs, did not apply because the EMCF had no such links at the time of the assessment. Five recommendations are broadly observed; these relate mainly to the heavy dependency of the EMCF on its major shareholder, ABN AMRO Clearing Bank (AACB, formerly Fortis Bank Global Clearing), and the chosen settlement structure. The EMCF has already reduced its dependency on the AACB by using and managing its own IT systems. It has also moved into its own premises and has become less (financially) dependent on the AACB. The availability of the EMCF was 100% in 2010.

The EMCF is currently being assessed according to the ESCB-CESR Recommendations for CCPs. The assessment will probably show a slight improvement in relation to the last assessment and is expected to score Recommendation 13 (Governance) as "observed".

AUSTRIA

Oesterreichische Nationalbank conducted in 2010-11 an assessment of the compliance of Central Counterparty Austria (CCP.A) with the ESCB-CESR Recommendations for CCPs. The CCP.A is a joint subsidiary of the Austrian CSD and the Austrian stock exchange and is the only CCP located in Austria.

All ESCB-CESR Recommendations were taken into account in the assessment, with the exception of Recommendation 11 which was deemed not to be applicable. The findings of the assessment were in general satisfactory; CCP.A has agreed to address all topics raised from the oversight perspective.

2.2.6 SERVICE PROVIDERS

SWIFT

SWIFT's Distributed Architecture project implemented two message processing zones: the European and Trans-Atlantic zones. This new topology became active in 2010 and required the addition of a second SWIFT operating centre in Europe. With this new Distributed Architecture, intra-zone messages can be processed without leaving their region of origin. SWIFT also set up a centre enabling command and control of its operations from Asia, as well as from the existing centres in Europe and the United States. The last, and ongoing, part of this extensive project consists of the roll-out of a new global SWIFT operating centre, replacing one of those currently in use.

This project is a major focus of the technical oversight of SWIFT. Aspects reviewed include the security and resilience features of the Distributed Architecture, management follow-up of project progress, migration and testing strategies as well as customer communication plans.

A second major project at SWIFT that will be assessed by overseers is the renewal of FIN, SWIFT's core messaging service. The project was approved by the SWIFT Board in December 2010. One objective is to enhance FIN so as to allow for interoperability with other communication protocols. Also, by offering FIN over a new technology platform, SWIFT intends to reduce ongoing operational costs while at the same time avoiding the risks of technology obsolescence of the previous platform.

The FIN renewal project is envisaged to last around four years and is being followed closely by overseers. Other new SWIFT projects, if any, are analysed by overseers to the extent that they impact the critical services of FIN and SWIFTNet, which are subject to oversight.

At the end of 2010 SWIFT created the function of Chief Risk Officer (CRO). The CRO coordinates the further development of an integrated Enterprise Risk Management framework across SWIFT and assists in structuring risk-based discussions between the Board and management.

Other areas where SWIFT is subject to oversight include its role in the processing of financial sector messaging, traffic evolution, internet-based access solutions, cyber defence, IT audit activities, security risk management and enterprise risk management.

2.3 OTHER ACTIVITIES

INTERDEPENDENCIES

Based on the experience with the collapse of Lehman Brothers in September 2008 and in line with a report[31] by the Bank for International Settlements, the Payment and Settlement Systems Committee (PSSC) is conducting work to identify the risks arising from interdependencies between systems, notably: i) from the participation of financial institutions in two or more systems (institution-based interdependencies), and ii) from direct cross-system relationships (system-based interdependencies) resulting from technical[32] or corporate[33] connections. For the future it is envisaged to study issues resulting from broader commonalities across systems, including the use of a common service provider (environmental interdependencies).

This work aims to enhance the monitoring of risks resulting from interdependencies between EU market infrastructures, such as the transmission of shocks and problems from one market infrastructure to another, and to develop a support tool for crisis management.

CRISIS COMMUNICATION

The ESCB conducted several technical communication tests and a simulation on crisis communication and management. The outcomes were considered very useful in raising awareness of the role of oversight in crisis communication as well as to ensure familiarity with the existing procedures.

SECURE PAY

As announced in the "Seventh single euro payments area (SEPA) progress report",[34] in 2011 the Governing Council approved the mandate for a European forum on the security of retail payments (SecuRe Pay).

SecuRe Pay is a voluntary cooperative initiative between authorities aimed at facilitating common knowledge and understanding – in particular between overseers and supervisors of payment service providers – of the issues at stake in the field of retail payments security.

In its plenary composition, SecuRe Pay is composed of EU overseers and supervisors of payment service providers, the European Banking Authority and, as observers representative of EEA countries, the European Commission and Europol.

Payment industry representatives can be invited to meetings on an ad hoc basis depending on the specific topic; however, they cannot participate in discussions on the final endorsement of recommendations. In addition, SecuRe Pay may organise round-tables, workshops or issue public consultations.

SecuRe Pay addresses issues concerning electronic retail payment services and retail payment instruments (excluding cheques and cash) provided within the EEA Member States or by providers located in the EEA Member States. Work focuses on the whole processing chain independent of the payment channel.[35] The forum aims to address areas where major weaknesses and vulnerabilities are detected and where appropriate will make recommendations.

The main work streams for 2011 concerned recommendations for the security of internet payments. Once the final versions are approved, a public consultation on the recommendations will be launched in 2012.

3 OUTLOOK

The description of the Eurosystem's oversight function and activities in this report has shown that many oversight activities are either not yet finished or are conducted on an ongoing basis, for example the continuous oversight of certain

31 CPSS (2008), *The interdependencies of payment and settlement systems*, June.
32 For example, links between a securities settlement infrastructure and a large-value payment system for cash settlement.
33 Such as two financial market infrastructures belonging to the same group of companies or one controlling the other.
34 ECB (2010), *Seventh single euro payments area (SEPA) progress report*, October, pages 6 and 34.
35 Such as payment transactions via physical terminals, mobile phones or the internet.

individual infrastructures, such as TARGET2. In addition, the Eurosystem regularly refines its oversight policies and develops new oversight frameworks thus keeping up to date with developments in payment, clearing and settlement infrastructures. The Eurosystem will continue to pursue its oversight objectives, such as promoting financial stability, and endeavour to achieve them as successfully as it has in the past, resulting in safe, reliable and efficient overseen infrastructures and arrangements. The activities which will be the main focus of the Eurosystem's oversight function in the short to medium term are described below.

Regarding the current *EU legislative initiatives* related to securities and derivatives (e.g. EMIR, the CSDR), the Eurosystem will continue to observe the developments of the regulatory proposals and contribute whenever appropriate. It is especially important that the Eurosystem's oversight competence in respect of the infrastructures subject to the legislation is clearly recognised therein.

At global level, the new *CPSS-IOSCO principles for financial market infrastructures* remain to be finalised, taking into account the comments received through public consultation. Some of the Eurosystem central banks are greatly involved in developing these new principles. The new principles will replace the CPSS Core Principles for systemically important payment systems (2001), the CPSS-IOSCO Recommendations for securities settlement systems (2001) and the CPSS-IOSCO Recommendations for central counterparties (2004). Once finalised, the Eurosystem will discuss how to integrate the new global principles in the light of its current oversight policies, either by completely replacing Eurosystem oversight standards, or by amending them to bring them into line. In the draft of the new CPSS-IOSCO principles, emphasis was placed – among other things – on interdependencies and the role of critical participants. Ongoing analytical oversight work in this field will continue and provide relevant insights for oversight activities.

In the area of *retail payment system oversight*, new requirements are currently being developed which relate specifically to links between systems. The Eurosystem will consult the public before finalising them. Moreover, the review of the 2003 Oversight standards for euro retail payment systems is ongoing and will take into account the new CPSS-IOSCO principles once they are finalised.

In terms of *cooperative oversight arrangements*, Eurosystem central banks will continue to participate in ongoing oversight activities focused on infrastructures such as SWIFT and CLS for which cooperative arrangements have been in place for a number of years. For other infrastructures or critical service providers that are in the Eurosystem's oversight scope, the task remains to develop detailed cooperative oversight arrangements. This is the case for T2S, which is still in the development phase and for which some form of cooperation between interested authorities already exists, but not a formally agreed oversight arrangement.

A large proportion of future oversight activities will remain devoted to the *monitoring and assessment* of how individual clearing and settlement infrastructures, arrangements and service providers comply with the Eurosystem's oversight policies. For example, the oversight activities concerning large-value *payment systems* will include following up on previous oversight recommendations and the assessment of a new software release for the TARGET2 system. All euro area retail payment systems will be subject to a fully fledged assessment against the revised oversight standards for RPS once they are finalised. In addition, individual changes in RPS, such as the already announced additional settlement cycles in the SCT service of the STEP2 system, will be assessed by the responsible overseers.

With respect to *payment instruments*, forthcoming Eurosystem activities include completing the assessments of card payment schemes and the subsequent publication of a comprehensive assessment report covering the whole CPS sector in Europe. Another example is the upcoming first assessment of SEPA payment instruments against the respective Eurosystem oversight standards.

Regarding *correspondent banking*, the eighth survey on correspondent banking in euro is scheduled for spring 2012. The questionnaire and the methodology are to be prepared and the data gathered analysed. In addition, the envisaged more intense cooperation with banking supervisors will need to be arranged at national level.

Besides the above-mentioned oversight activities, the Eurosystem central banks will continue *sharing their oversight experiences* with other central banks, e.g. in the form of bilateral technical central bank cooperation or through the organisation of payment and/or oversight seminars.

4 SPECIAL ARTICLES

4.1 PROGRESS IN OTC DERIVATIVES MARKET REFORM: A EUROSYSTEM PERSPECTIVE

4.1.1 INTRODUCTION

The reform of OTC derivatives markets has been a major part of the work to enhance financial system resilience since the recent global financial crisis. Indeed, the limited development of financial market infrastructures, weaknesses in bilateral risk management and lack of transparency regarding counterparty exposures in OTC derivatives markets were identified to have contributed to the financial market turbulence associated with the near-default of Bear Stearns, the demise of Lehman Brothers and the bail-out of the AIG in 2008. These cases also illustrated the potential systemic repercussions of a malfunctioning of OTC derivatives markets, particularly in view of their large size and close linkages with the underlying cash markets. To enhance the functioning of OTC derivatives markets, the G20 leaders agreed in September 2009 at their meeting in Pittsburgh that: "All standardised OTC derivatives contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties by end-2012 at the latest. OTC derivative contracts should be reported to trade repositories. Non-centrally cleared contracts should be subject to higher capital requirements".

While various policy and market-led initiatives are underway to implement the G20 mandate, this special article focuses on the progress on measures of particular relevance for the Eurosystem. Section 4.1.2 provides a brief overview of ongoing OTC derivatives reforms and identifies three main priorities for central banks, including: i) cross-border and cross-sectoral convergence of requirements for the risk management and use of OTC derivatives infrastructures, ii) central bank involvement in cooperative arrangements for OTC derivatives CCPs and TRs, and iii) availability and access to high-quality TR data in line with central bank information needs. Moreover, the high importance of OTC derivatives market reform particularly for the Eurosystem is underlined, given the major role of the euro as a currency of denomination of OTC derivatives contracts. Section 4.1.3 assesses the progress in OTC derivatives market reform, focusing on the central bank priorities identified above and specific Eurosystem considerations in this regard. Section 4.1.4 concludes.

4.1.2 OTC DERIVATIVES REFORM: ONGOING INITIATIVES, MAIN CENTRAL BANK CONCERNS AND THE INTEREST OF THE EUROSYSTEM

4.1.2.1 Overview of ongoing initiatives

Various international, regional and national initiatives follow up on the G20 mandate. The key areas are listed below.

- Development and adoption of coherent legislative and regulatory frameworks to implement the G20 mandate for trading, central clearing and reporting of OTC derivatives.

- Process and contractual standardisation of OTC derivatives as a prerequisite not only for operational efficiency and safety, but also for enhanced organised platform trading and central clearing.

- Definition of requirements for organised trading platforms, CCPs and TRs to ensure the safety and efficiency of those infrastructures, open access (with restrictions solely based on risk-based considerations) and interoperability (to the extent that this does not hamper their sound functioning).

- Measures to promote the further development and use of OTC derivatives infrastructures in line with the G20 deadline of end-2012.

- Development of cooperative arrangements between authorities for OTC derivatives TRs and CCPs in line with their cross-border and cross-sectoral risk implications.

- Definition of capital and collateral ("margining") requirements for OTC derivatives transactions, reflecting the higher risks inherent in bilateral clearing and taking into account specific issues with regard to indirect access to CCPs through client clearing.[36]

4.1.2.2 Main concerns from a central banking perspective

Three issues in OTC derivatives reform are particularly important for central banks because of their direct implications for central banking responsibilities.[37]

First, requirements for the risk management and use of OTC derivatives infrastructures should be consistent both across borders and sectors. Indeed, given the global nature of OTC derivatives markets and the cross-border and/or multicurrency nature of several infrastructures serving them, the cross-border consistency of requirements is a prerequisite for moving as many eligible transactions as possible to infrastructures, as well as for mitigating the respective risks and pre-empting regulatory arbitrage. Similarly, should prudential requirements for OTC derivatives infrastructures not sufficiently reflect the concerns of overseers, central banks may need to issue separate oversight standards, with risks of overlaps or even inconsistencies.

Second, cooperative arrangements for OTC derivatives TRs and CCPs should involve central banks in line with the cross-border and cross-sectoral risk implications of the infrastructures. In particular, arrangements should include the central banks of issue of the main currencies processed and the central banks with oversight responsibilities for either the concerned infrastructure or for other closely interdependent financial market infrastructures. Cooperation should promote consistent approaches of authorities, reduce risks of duplication or gaps in the monitoring of the infrastructures, and support all authorities in performing their tasks through a two-way process of information-sharing and consultation.[38]

36 For a comprehensive overview of the scope and state of play of OTC derivatives reform initiatives, see Financial Stability Board (2011), *OTC Derivatives Market Reforms. Progress report on Implementation*, October.

37 Of course, other areas of OTC derivatives reform are also of relevance to central banks. For example, from an oversight perspective, it is important to ensure that capital and collateral requirements for OTC derivatives transactions create appropriate incentives for using market infrastructures. In addition, some of the related provisions may affect the design and operation of market infrastructures (e.g. possible capital incentives to reduce the size of CCP default funds in favour of higher initial margin requirements). Similarly, mandatory reporting and clearing obligations should also be designed so as to ensure that all relevant transactions and counterparties are effectively covered in order to fully reap the risk mitigating and transparency enhancing effects of financial market infrastructures. However, the primary responsibility for specifying rules in these areas lies with the supervisors of market participants. Central banks may act as catalysts for progress in standardisation and efforts to develop OTC derivatives infrastructures for those market segments where they do not yet exist, but this is in essence an industry-led process, supported by the supervisors of the major OTC derivatives dealers.

38 On the one hand, supervisors of OTC derivatives infrastructures processing the euro may have information on emerging risks in these infrastructures that may affect interdependent infrastructures overseen or operated by central banks or financial institutions that are critical participants in these infrastructures. The concerned central banks should be informed of such risks in a timely and comprehensive manner and be consulted by supervisors on adequate measures to mitigate these risks. On the other hand, central banks have specific knowledge and expertise which is beneficial to the effective performance of supervision. In particular, central banks of issue are the only authorities with a full overview of the liquidity conditions and settlement arrangements in their currency. This knowledge is crucial to determine whether the liquidity risk management and settlement arrangements of a CCP operating substantial business in that currency are sound and it should accordingly be taken into account by supervisors in their respective assessment. In addition, given that several critical infrastructures overseen and, in some instances, operated by central banks of issue are closely interrelated with other infrastructures processing the relevant currency through common participants and direct linkages, the central bank of issue can play a unique role in detecting potential risks and contagion channels arising across infrastructures and in coordinating the respective measures.

One issue that may be worth clarifying in this context relates to the role of central banks with regard to TRs, given the novelty of these infrastructures. The fact that TRs do not take financial risk has sometimes been misinterpreted to imply that they do not pose risks to financial stability or the smooth functioning of financial market infrastructures, and consequently are not within the scope of the central banks' oversight competence. However, as the Eurosystem recently clarified,[39] the opposite is true, as many infrastructures overseen by central banks, such as payment systems and CCPs, rely on the availability and accuracy of TR data. The overseers of these infrastructures must therefore be aware of any adverse developments in relevant TRs and be involved in setting the requirements for their risk management. Indeed, this is the reason why SWIFT, a provider of electronic messaging services between banks, has been subject to cooperative central bank oversight for many years. The same rationale has led to the joint development of international principles for TRs by overseers and securities regulators.[40]

Third, given the inherent opacity of OTC derivatives markets, central banks are strongly interested in the accuracy, timeliness and effective accessibility of TR data in line with their information needs. Indeed, OTC derivatives markets, when compared with markets for listed derivatives or cash products, are still to a large extent characterised by bilateral trading and post-trading, with a corresponding fragmentation of market data. While the growing use of organised trading venues and CCPs should help to mitigate these problems, this process will still take some time. In addition, not all OTC derivatives products will be sufficiently standardised or liquid to be eligible for either organised trading or central clearing. Against this background, the role of TRs in providing centralised storage and safekeeping services for OTC derivatives transactions is critical to enable a comprehensive overview of open positions and the corresponding exposures arising from OTC derivatives transactions.

Central banks have specific information needs in this regard. First, they require aggregate data on the role of their currency, domestic assets as underlyings, and exposures of domestic financial institutions with regard to OTC derivatives transactions in order to broadly gauge the extent to which counterparty and liquidity risk and operational disruptions in OTC derivatives markets could affect domestic money and financial markets and thereby their monetary policy and financial stability responsibilities.[41] Second, participant-level data on the positions of major domestic financial institutions (notably those of systemic relevance) and the largest counterparties for contracts denominated in the domestic currency or written on domestic assets help central banks to monitor the level and concentration of respective risk exposures, including for those financial institutions that may be critical participants in domestic infrastructures. However, access to participant-level data might be limited owing to national legal prerequisites.

4.1.2.3 The Eurosystem's interest in OTC derivatives market reform

The Eurosystem has a particularly keen interest in OTC derivatives market reform given the important role of the euro as a currency of denomination. Indeed, the euro is the second most important currency of denomination in all OTC derivatives market segments and has a correspondingly high share in the business of major existing OTC derivatives CCPs or TRs, as illustrated in Tables 1 and 2.

A malfunctioning of OTC derivatives market infrastructures could therefore have significant implications for the euro area. Such a malfunctioning could affect major euro area financial institutions active in these infrastructures, interdependent euro area financial market infrastructures (i.e. in which these financial

39 See the revised Eurosystem Oversight Policy Framework of July 2011 (Section 4).
40 The CPSS-IOSCO principles for financial market infrastructures (see footnote 45 below) will also cover TRs.
41 While aggregate notional information does not allow for a precise measurement of the financial risks, it enables – if provided on a sufficiently timely and frequent basis – changes in exposures to be detected and can thereby act as an early warning mechanism for developments of concern which can then be assessed in greater detail (including through cooperation with other authorities).

Table 1 The role of the euro as currency of denomination of OTC derivatives [1]

	USD share of global notional values (percentages)	EUR share of global notional values (percentages)	Outstanding EUR gross market values
OTC interest-rate derivatives [2]	31	40	USD 4.8 trillion
OTC foreign exchange derivatives [1]	42	19	USD 894 billion
OTC credit derivatives [3] (CDSs)	57	42	USD 477 billion

1) Per asset class; no data on the euro-denominated share of OTC commodity derivatives and OTC equity-linked derivatives are currently publicly available. However, OTC commodity and equity-linked derivatives markets are also much smaller in size, accounting for only 0.4% and 1% of global notional values (see BIS (2011), *OTC derivatives market activity in the first half of 2011*, Table 1, November).
2) Ibid., Tables 2 and 3.
3) Currency breakdowns of notional values based on DTCC, Trade Information Warehouse Data, Table 1a (as of 18 November 2011), EUR values adjusted for USD equivalent; calculation of gross market values. The DTCC Trade Information Warehouse currently captures around 98% of global CDS transactions.

institutions act as critical participants or which have direct linkages with the OTC derivatives infrastructures concerned), as well as related euro area financial market segments. Depending on the extent of the financial vulnerabilities – notably in terms of credit, liquidity, settlement and operational risk – the corresponding financial implications could impact on the Eurosystem's responsibilities for monetary and financial stability as well as its oversight responsibilities for payment and clearing systems in the euro area.[42]

4.1.3 PROGRESS ACHIEVED SO FAR

4.1.3.1 Overall progress in meeting the G20 commitments

While significant efforts in OTC derivatives market reforms have been made, there are increasing indications that the G20 targets with respect to organised trading, central clearing and reporting to TRs will not be met by the end-2012 deadline. This is a concern for all public authorities, including central banks, as it implies that the major structural deficiencies of OTC derivatives markets in terms of transparency and risk management will not be addressed in a sufficiently comprehensive and timely manner, with potential risks to the safe functioning of these markets. However, given the close monitoring of OTC derivatives reform by the Financial Stability Board (FSB), authorities are aware of these risks and have recently agreed a number of actions to speed up the reform process.[43]

4.1.3.2 Consistent requirements for the risk management and use of OTC derivatives infrastructures

Cross-border convergence

As mentioned above, the euro and the US dollar are by far the two most important currencies of denomination of OTC derivatives contracts. In addition, typically both currencies are traded by the main dealers and processed by OTC derivatives infrastructures, rendering the euro and US dollar-denominated market segments highly interdependent. Furthermore, the largest OTC derivatives CCPs and TRs are currently located in either the EU or the United States. Against this background, EU-US convergence of requirements for the risk management and use of OTC derivatives infrastructures is a key priority to achieve the cross-border consistency of rules, particularly from the Eurosystem's perspective.

In both jurisdictions, legislative requirements and implementing rules for OTC derivatives markets have been adopted or are under preparation. They include mandatory obligations for central

42 According to the Treaty on the Functioning of the European Union, one of the basic tasks of the Eurosystem is to promote the smooth operation of payment systems. In addition, under the Protocol on the Statute of the European System of Central Banks and of the European Central Bank, the ECB and the national central banks may provide facilities, and the ECB may make regulations, to ensure efficient and sound clearing and payment systems within the EU.

43 Financial Stability Board (2011), *OTC Derivatives Market Reforms, Progress Report on Implementation*, October, see footnote 54.

Table 2 Euro-denominated transactions processed by OTC derivatives CCPs and TRs[1)]

	EUR share of all transactions (value; percentages)	Outstanding EUR gross market values (approximate)[2)]
SwapClear (IRS CCP)[3)]	-	USD 2 trillion
ICE Clear Europe (CDS CCP)[4)]	100	USD 32 billion
TriOptima (IRS TR)[5)]	35	USD 4 trillion
DTCC WT (CDS TR)	42	USD 477 billion

1) OTC derivatives TRs are in place for CDS, interest rate swap (IRS) and OTC equity-linked derivatives; however, the former does not yet publish data. Substantial CCP clearing is currently limited to CDS, IRS and OTC commodity derivatives; for the latter, no currency breakdowns are available. Close to 100% of euro-denominated CDSs and IRSs are cleared by ICE Clear Europe and SwapClear (a clearing service offered by LCH.Clearnet SA).
2) Calculation of euro gross market values based on data on euro notional values, adjusted on the basis of the proportion of notional values to gross market values per asset class, as provided in BIS, op. cit., Tables 1 and 2.
3) SwapClear does not provide currency breakdowns of its business. However, the absolute value of its euro-denominated business can be approximated based on TriOptima's figures on the trade summary by currency and CCPs (as of 11 November 2011), as euro-denominated IRSs are almost exclusively cleared by SwapClear.
4) Outstanding notional values based on ICE Clear Europe figures on open interest in index and single name CDSs (as of 28 November 2011); represented in USD equivalents. At present, ICE Clear Europe only clears euro-denominated CDSs.
5) Currency breakdowns based on the TriOptima trade summary by currency as of 11 November 2011. It is noted that the DTCC's MarkitSERV took over the TR business for IRSs from TriOptima during the fourth quarter of 2011.

clearing, organised trading or TR reporting of OTC derivatives as well as the risk management of OTC derivatives infrastructures. In the EU, it is expected that framework legislation on OTC derivatives, CCPs and TRs (the European Market Infrastructure Regulation, EMIR) will be adopted at the beginning of 2012 and that implementing rules will come into force by end-2012. Requirements for the organised trading of OTC derivatives will be developed as part of the revised Markets in Financial Instruments Directive[44] (MiFID), for which legislative proposals were issued in October 2011. In the United States, legislation on all the above-mentioned matters was already adopted with the Dodd-Frank Wall Street Reform and Consumer Protection Act in July 2010 and the related final implementing rules are expected to be adopted by end-2012 at the latest.

Convergence of national rules can be achieved through the consistent application of the relevant international standards. Indeed, the competent global standard-setting bodies, the CPSS and IOSCO have been working to update international guidance for financial market infrastructures, also taking into account specific issues related to OTC derivatives markets. The publication of the draft CPSS-IOSCO principles for financial market infrastructures is therefore a milestone towards achieving the comprehensive and globally consistent mitigation of risks arising in OTC derivatives CCPs and TRs.[45]

It should however be noted that no international standards for either trading infrastructures or for the implementation of mandatory clearing, trading or reporting obligations currently exist.[46] Furthermore, while the final regulatory details in these areas are not yet available for either the EU or the United States, there are concrete risks to cross-border convergence, notably in terms of the scope of mandatory clearing and reporting

44 Directive 2004/39/EC of 21 April 2004 on markets in financial instruments amending Council Directives 85/611/EEC and 93/6/EEC and Directive 2000/12/EC of the European Parliament and of the Council and repealing Council Directive 93/22/EEC, OJ L 145, 30.4.2004, p. 1, as amended.

45 In March 2011 the CPSS and IOSCO issued draft "Principles for financial market infrastructures" for public consultation. They aim to finalise the principles in the first half of 2012, after taking into account the feedback received.

46 IOSCO published in February 2011 a report on the benefits and challenges associated with the exchange or electronic platform trading of OTC derivatives and methods of increasing the use of these platforms (Report on Trading of OTC Derivatives). It is currently conducting an analysis of the market use of multi-dealer versus single-dealer platforms. In addition, IOSCO is preparing a report on international standards to address the coordination of central clearing requirements, which should be available in early 2012.

obligations.[47] These divergences will need to be addressed if a global regulatory level playing field is to be achieved.

Cross-sectoral convergence

The CPSS-IOSCO principles for financial market infrastructures, when finalised, will provide a global basis for cross-sectoral consistency of requirements for OTC derivatives CCPs and TRs. However, contrary to this approach and the current situation whereby EU overseers and securities regulators cooperate on an equal footing in standard-setting for financial market infrastructures,[48] the EMIR proposal envisages that responsibility for developing several technical standards for CCPs and all technical standards for TRs is assigned to the European Securities and Markets Authority (ESMA) alone, without the involvement of the ESCB.

The ECB noted its concerns in its opinion[49] on the EMIR proposal, underlining that the definition of technical requirements for CCPs and TRs under EMIR should be conducted by ESMA in close cooperation with the ESCB. Indeed, should EU prudential requirements for OTC derivatives infrastructures not fully reflect the concerns of EU central banks, the Eurosystem may need to consider, with a view to fulfilling its own mandate, the issuance of separate oversight standards for euro area financial infrastructures. However, the Eurosystem seeks to avoid the need for such action, as different oversight and prudential requirements could imply risks of duplication and inconsistency, rendering the public interface for the infrastructures excessively complex and creating risks of regulatory uncertainty.

4.1.3.3 Central bank involvement in cooperative frameworks for OTC derivatives CCPs and TRs

The main priority for the Eurosystem is to ensure its involvement in the oversight of OTC derivatives CCPs and TRs with significant euro-denominated business, as they are not only relevant from a central bank of issue perspective or currently subject to direct oversight by the Eurosystem, but also have the closest interdependencies with other euro area infrastructures operated or overseen by the Eurosystem.

Against this background, it is in the Eurosystem's interest to receive information on the scope of the euro-denominated business of OTC derivatives CCPs and TRs and be involved in the authorisation and ongoing risk assessment of the infrastructures through cooperative oversight frameworks. Cooperation would enable a more in-depth discussion of matters of particular concern for the Eurosystem, in line with the specific risks inherent to the infrastructures and their potential implications for the euro area. For CCPs, the Eurosystem's attention focuses on assurances regarding the mitigation of credit, liquidity and settlement risk, information on interdependencies with euro area financial institutions and infrastructures, and the timely notification of any major financial or operational vulnerabilities that may arise. For TRs, the main Eurosystem concerns relate to data quality, operational risk management and business continuity arrangements, operational links with euro area infrastructures, and early notification of performance problems. Cooperative frameworks for all OTC derivatives infrastructures should also include dedicated crisis management arrangements to ensure prompt and well-coordinated action to limit contagion effects in the event of financial or operational distress.

47 For instance, while the US mandatory clearing obligations are expected to cover both standardised OTC derivatives and exchange-traded derivatives, the EMIR proposal only envisages the inclusion of OTC derivatives. Similarly, while the US Treasury has proposed an exemption of forex swaps and forwards from the clearing obligation, the EMIR proposal in principle covers all OTC derivatives asset classes (although the European Securities and Markets Authority would have some scope of discretion). Similarly the current discussions in the European Council and the European Parliament suggest that the final version of EMIR will include wide exemptions of intra-group transactions, while it is less clear whether that will be the case in the United States. Furthermore, EMIR only requires the reporting of OTC derivatives transactions to TRs, whereas under the proposed US rules both on-exchange and OTC derivatives transactions should be reported.

48 In line with the Ecofin invitation of June 2008, the ESCB and the CESR adapted and finalised the "Recommendations for securities settlement systems and recommendations for central counterparties in the European Union", which were published in May 2009.

49 CON/2011/1.

To some extent, the EMIR proposal would enhance the EU framework for the cooperative oversight of CCPs by requiring the establishment of colleges of authorities for these infrastructures. Indeed, a key lesson from the financial crisis was that a bilateral, ad hoc approach to cooperation between authorities is not sufficient to ensure the effective monitoring of major cross-border banks. There are a number of cross-border and multi-currency CCPs in the EU that pose as many cross-jurisdictional financial stability risks and related cooperation challenges as large financial institutions. To this end, the colleges' role should not be limited to a one-off assessment of CCPs in the context of the authorisation process, as suggested in the EMIR proposal. Instead, as noted in the ECB's opinion, central bank overseers and central banks of issue should also be involved in the ongoing risk assessment and crisis management arrangements. Furthermore, cooperation should be extended to the oversight of TRs. Finally, the ECB states in its opinion that ESMA should consult the Eurosystem before granting authorisations for third-country CCPs and TRs processing the euro, given the potential implications of the activity of such infrastructures for the responsibilities of the Eurosystem and to avoid a lack of coordination vis-à-vis third countries.

In the meantime, significant practical steps towards enhanced cooperative arrangements for OTC derivatives CCPs and TRs have already been taken at global level. For instance, a cooperative oversight protocol with regard to the DTCC's Warehouse Trust, the US-based trade repository provider for CDSs, was signed in June 2011. Three Eurosystem central banks participate in this arrangement: the ECB (representing the Eurosystem as central bank of issue for the euro), the Deutsche Bundesbank and Banque de France, given the major market players in Germany and France and their oversight responsibilities for CCPs using the Warehouse. Efforts are also underway to develop global cooperative arrangements with regard to two OTC derivatives CCPs with particularly pronounced cross-border and/or cross-currency risk implications, ICE Clear Europe and SwapClear.

The design and operational modalities of the above-mentioned cooperative arrangements are in principle subject to the discretion of the participating authorities – in particular, the primary supervisor and/or overseer in the jurisdiction where the infrastructure is located. However, the general global framework, including the 2005 CPSS Principles for international cooperative oversight,[50] has provided some guidance to authorities. The Principles concern the scope of cooperation, relevant authorities and the coordinating role of the authority with primary responsibility for the infrastructure. Moreover, the forthcoming CPSS-IOSCO principles for financial market infrastructures outline the general responsibilities of central banks and market regulators, as regards, for example, cooperation and information sharing. In addition, within the framework defined by standard-setters, the OTC Derivatives Regulators' Forum is helping to develop cooperative arrangements for individual OTC derivatives CCPs and TRs by providing transparency and facilitating consultation with all interested authorities regarding the evolving arrangements for each infrastructure.

4.1.3.4 Availability and access to high-quality TR data in line with central bank information needs

While the availability and accessibility of TR data has improved in recent years, the progress achieved is not yet in line with central banks' information needs for most OTC derivatives asset classes. One issue in this regard is data coverage, which is well advanced for interest rate and credit derivatives, but less so for equity derivatives. Moreover, TRs for OTC foreign exchange and commodity derivatives are currently still under development. Another important challenge relates to central banks' effective access to the information stored.

50 CPSS (2005), *Central bank oversight of payment and settlement systems*, May.

Whereas for credit derivatives a dedicated website enables public authorities to access data[51] in line with their information needs, this is not the case for interest rate and equity derivatives. For those asset classes, central banks without supervisory responsibilities over reporting financial institutions only have access to aggregate market data with limited geographical and currency breakdowns.[52]

Recent findings of the CPSS, IOSCO and the FSB[53] indicate that several factors may account for the limited progress observed, such as remaining legal barriers to the collection and dissemination of TR data as well as the lack of sufficiently specific international guidance on the types of data that should be made available by TRs to the different authorities. While the former issue should be addressed – at least for the EU and the United States – by the forthcoming legislation and implementing rules for TRs, the latter will require further internationally coordinated analysis and agreement. The FSB has mandated the CPSS and IOSCO to take this work forward. Furthermore, a comprehensive overview of OTC derivatives transactions related to euro-denominated contracts, euro area reference entities and contracts traded by euro area financial institutions will not be achieved until the aggregation of TR data across asset classes is possible. The work of the CPSS, IOSCO and the FSB has highlighted that such data aggregation is not only hampered by differences in the overall state of TR development and the data fields and formats used, but also by more structural barriers to data aggregation in the financial sector. These barriers stem from the absence of unique systems for legal entity identification (LEI) and product classification as well as from remaining gaps in the types of data captured by TRs.[54]

4.1.4 CONCLUSION

Progress in OTC derivatives market reform is a key issue for the Eurosystem, given the important role of the euro as a currency of denomination of OTC derivatives and the close linkages between market infrastructures serving these markets and euro area financial institutions and other market infrastructures. While much work has been done in this area in recent years, the Eurosystem shares the concerns of other authorities that the G20 commitments – in terms of central clearing and organised trading of all standardised OTC derivatives transactions and reporting of all OTC derivatives transactions to TRs – are unlikely to be fully met by the end-2012 deadline. The Eurosystem supports further efforts to speed up the process.

Further action should also be taken to address specific risks relating to the main central bank priorities in OTC derivatives market reforms.

Regarding the need for *cross-border and cross-sectoral consistency* of requirements for the risk management and use of OTC derivatives infrastructures, the consistent implementation and further development of international standards will help to avoid regulatory differences and gaps. Furthermore, continued bilateral action at an early stage to tackle specific EU-US regulatory differences is critical. While cross-sectoral cooperation in standard-setting has advanced well at global level, this is not yet the case in the EU. To this end, EU securities regulators and central banks should cooperate on an equal footing in defining technical standards for OTC derivatives CCPs and TRs in order to avoid a lack of coordination leading to inconsistent approaches and regulatory uncertainty.

51 For example, the Eurosystem has access to aggregate and participant-level data on euro-denominated contracts, contracts on euro area reference entities and exposures of euro area financial institutions.

52 See Annex 1 to the CPSS-IOSCO consultative report (2011), *Report on OTC derivatives data reporting and aggregation requirements*, August; also Section 1.4 and Appendix VI of FSB (2011), op. cit. for information on the current state of OTC derivatives reporting and access to information for the major existing TRs.

53 Ibid.

54 In line with the FSB recommendations contained in its Progress Report of October 2011, follow-up work on the LEI, a standard product classification system and the assessment of gaps in TR data is currently underway.

While work to develop *cooperative arrangements between authorities for OTC derivatives CCPs and TRs* has been progressing at global level and takes into account the Eurosystem's roles as central bank of issue and overseer, the EU legislative proposals are inadequate in this regard. In particular, central bank involvement is not envisaged for either EU or third-country TRs and is insufficient for the ongoing risk assessment of European CCPs. Further progress in these areas is important to ensure that risks related to OTC derivatives CCPs and TRs are monitored and addressed appropriately, in line with the significant implications of such infrastructures for the statutory responsibilities of central banks.

Finally, significant progress in the *availability and accessibility of TR data* has so far only been achieved for credit derivatives, while progress is much more limited for the other asset classes. The forthcoming initiatives to specify authorities' access to TR data, enhance tools for data aggregation and close remaining data gaps are essential to obtain a comprehensive overview of risks in OTC derivatives markets, including from a central banking perspective.

4.2 TARGET2 TRANSACTIONS: DATA AND ANALYSIS

4.2.1 INTRODUCTION

The TARGET2 overseers, which include the Eurosystem and the other non-euro area EU NCBs participating in TARGET2, launched the TARGET2 Simulator project in 2009. The aim of the project is to conduct quantitative and qualitative risk assessments on the functioning of TARGET2 based on transaction-level data.[55] The project relies on an enhanced version of the widely used payment system simulator of Suomen Pankki – Finlands Bank and a common platform for accessing and analysing the data. The development phase of the project was concluded in late 2010 and further work on the tool was carried out in 2011. The main emphasis so far has been on analytical work independent of the simulator tool itself – focusing on the transaction-level dataset.

This special article provides an insight into the work carried out. A short overview of the TARGET2 transaction-level dataset is given and the remainder summarises the three strands of work currently under way.

4.2.2 THE TARGET2 TRANSACTION-LEVEL DATASET

The TARGET2 dataset is a complete record of all transactions carried out on the TARGET2 Payment Module (T2 PM), which is the main component of TARGET2 along with the Home Account Module (HAM) and (for a few NCBs) the respective proprietary home accounts.[56]

For each transaction the dataset contains:

- the sending and the receiving *accounts*;
- the transacted *amount*;
- the introduction and settlement *times*.

The dataset is extensive. On a typical day over 350,000 transactions are settled in the system, involving approximately 1,300 different accounts held by more than 900 legally distinct entities.

Payments in the PM serve different purposes: most of these payments are between legally and economically distinct participants, but a certain number (roughly 30%) are between accounts of a same bank and therefore are mainly motivated by internal liquidity management. Finally, payments in TARGET2 vary greatly in size, ranging from less than €1 (payments made for purely technical reasons), to several billion euro. In 2010 the

55 Although the TARGET2 Simulator project was initiated by the TARGET2 overseers, the facility is also used separately by the TARGET2 operators for operational purposes. A decision of the ECB's Governing Council governs access to transaction-level data and the establishment of the simulator device (29 July 2010). See http://www.ecb.int/ecb/legal/pdf/l_21120100812en00450047.pdf (ECB/2010/9). In particular, access to and use of transaction-level data is limited to a small group of designated staff members from central banks, i.e. for the oversight function, the group of authorised overseers.

56 The TARGET2 dataset does not include transactions occurring in the PHAs and thus the analyses presented in the TARGET Annual Report may differ from the ones presented here.

daily average amount of payments in TARGET2 was approximately €3 trillion with an average payment value of €6.7 million.[57]

4.2.3 ANALYTICAL WORK

The TARGET2 overseers are currently engaged in a number of analytical projects involving TARGET2 transaction-level data. The aim of these projects is twofold: first, to better understand the nature of these payments and second, to gauge the impact of particular events on the functioning of the system. The following section provides some detail on three strands of work. The first two, which are conducted by the ECB, aim at achieving a better *understanding of actual payment patterns*. Hence this work is descriptive in nature, although it involves relatively sophisticated analyses to capture the salient characteristics of payments. The objective of the third strand of work – which is carried out by the ECB in cooperation with Eurosystem NCBs and interested non-euro area NCBs participating in TARGET2 – is to create a structure that will be used in the future to simulate the functioning of the system. This structure will enable overseers to create counterfactual scenarios and to quantify the potential impact of extraordinary events on the stability of the system.

4.2.3.1 The timing of TARGET2 payments

This work focuses on "interbank payments", i.e. payments made between pairs of different commercial banks on their own behalf.[58] Interbank payments are particularly important owing to their high average value and so their timely settlement is of special relevance, especially in low liquidity situations. Another reason to concentrate on interbank payments is that of all TARGET2 payments, they are believed to be the most flexible as to timing, thus they best convey participants' timing choices.[59]

Two dimensions of payments are considered here. First, their *interday and intraday time-profile*, used to identify critical times in terms of volume and value. Second, the time between introduction in the system and settlement, which is non-zero: i) when banks do not have enough liquidity to settle payments, ii) when bilateral limits prevent settlement, or iii) for other technical reasons, among which possible outages. This time difference between input and settlement is described here as "settlement delay", although it is important to highlight that the term does not necessarily have a normative connotation because the time difference can have various causes as mentioned above. Moreover the definition of delay employed in the TARGET Annual Report differs.[60]

A comparison of time-profiles and "settlement delays" in calm and turbulent periods can lead to the identification of an early warning indicator.

Main findings

On an average day, TARGET2 processes 68,000 interbank payments with a value of about €641 billion. More than half of these payments are below €100,000. A first interesting finding is that the percentage of these payments doubles around the "triple witching days" (Chart 6).[61] This result is reinforced when looking at the distribution of payments value: when fitting a Gamma distribution to the logarithm of the payments value, peaks (troughs) are observed for the shape (scale) parameter on the same days. This means that the distribution of payments value becomes more concentrated in those days, suggesting a connection between trading activities on financial markets and interbank payments.

57 As mentioned previously, the analyses performed using the TARGET2 dataset may show some differences in statistics and timing compared with the TARGET Annual Report. In this case, i.e. the daily average amount of payments in TARGET2, differences are due to the inclusion in the dataset of the volume and values of liquidity and technical transfers between the same participants.

58 Interbank payments do not include: i) payments made on behalf of customers, ii) payments between accounts of a same bank, made purely for internal liquidity management purposes, and iii) payments to/from central banks and ancillary systems.

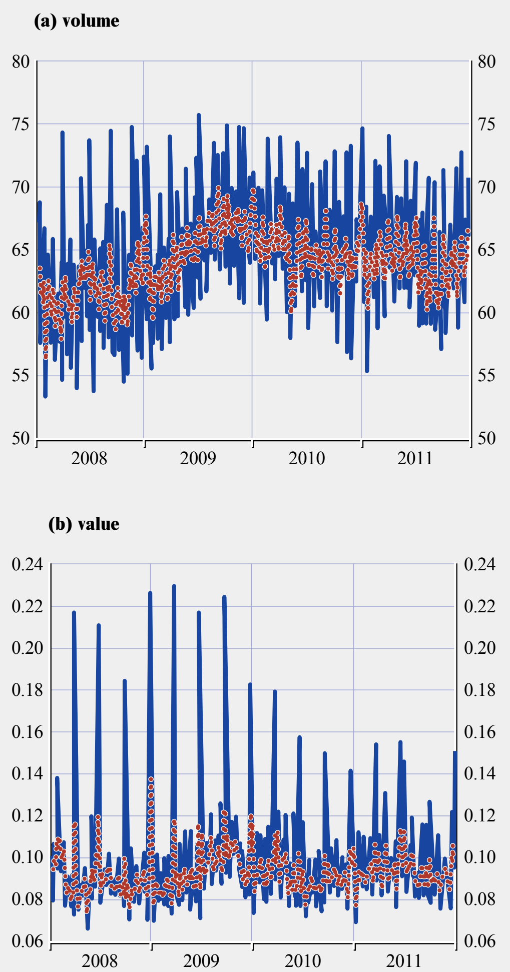
59 Ancillary system-related payments may be subject to rigid timing rules and have the highest priority assigned by default.

60 In the TARGET Annual Report, settlement delay or processing time does not include the first hour of operation and excludes all payments delayed owing to exceeded limits or liquidity shortage.

61 A triple witching day occurs when stock market index futures, stock market index options and stock options all expire on the same day.

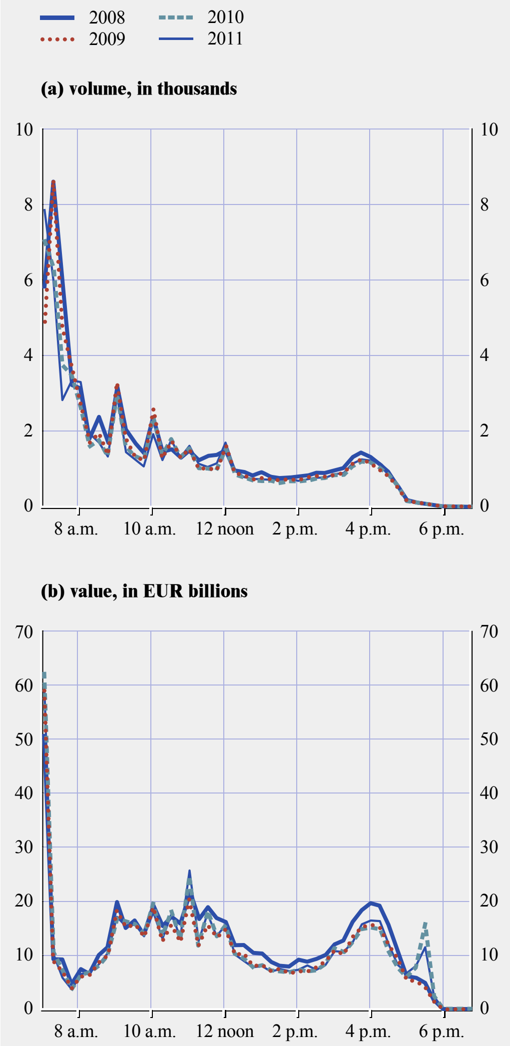
Chart 6 Daily payments under €100,000 in volume and value

(percentages)



Source: ECB.
Note: The red lines represent five-day moving averages.

Chart 7 Daily average of payments in volume and value



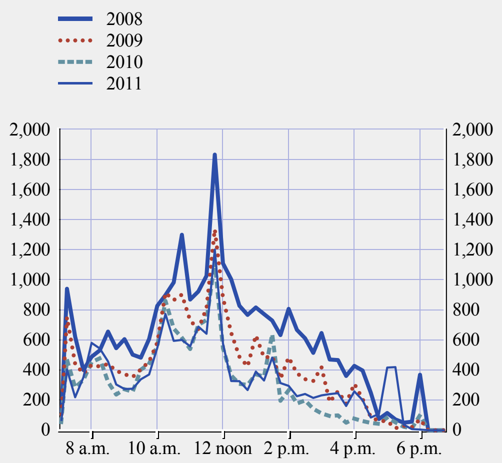
Source: ECB.

As for timing, the distribution of payments throughout the day is relatively flat (Chart 7). Nevertheless, a short but very pronounced peak is observed at the opening hour, owing to the simultaneous submission of several hundred payments. Towards the end of the day volumes are very small, but values are very large. Hence the system faces two challenges. On the one hand, in the morning, it experiences backlogging of payments in a queue. On the other hand, in the evening, it has to process a small number of very large-value payments, which may pose risks in terms of liquidity needs.

Two dimensions are relevant for the timing of payments: throughput (the cumulative distributions of payments volume and value) and "settlement delays" (the time difference between input and settlement). Looking at throughput, it is observed that more than 60% of payments are settled before noon – a percentage

Chart 8 Average value-weighted intraday "settlement delay" of payments

(seconds)



Source: ECB.

roughly constant from year to year, implying consistent timing decisions. The analysis of "settlement delays" confirms the importance of the morning hours in terms of the magnitude of such delays. The analysis is robust to a value-weighted approach (see Chart 8).

4.2.3.2 The network of TARGET2 payments

One way of describing a large-value payment system (LVPS) is via its network characteristics. An LVPS is a network whose nodes represent participants and whose links represent payments between pairs of nodes made over a given time interval. Despite partially flattening out the time dimension,[62] this representation conveys immediate information on the structure of the system.

A clear view of the network of payments is useful to overseers for various reasons. It helps to identify banks which are "central" from a liquidity circulation point of view. It can reveal possible dependencies between banks in terms of liquidity provision. Moreover, observing the network over time can reveal trends or anomalies. If these lead to stress events, the anomalies may be used as early warning indicators.

The first objective of this work is to compute some statistics on the TARGET2 network in order to determine salient features of the system. The second objective is to partition the system into a relatively small number of appropriately defined *communities*. This is done by using some community-detection algorithms which distinguish sets of banks such that circulation *within* sets is more intense than circulation *across* sets.

The section below concentrates on payments between banks, where "banks" are taken as economically significant entities. That is, payments between accounts of a same bank, and payments between recently merged banks are left out. Similarly, payments involving non-banks (such as ancillary systems and central banks) are filtered out.

Main findings

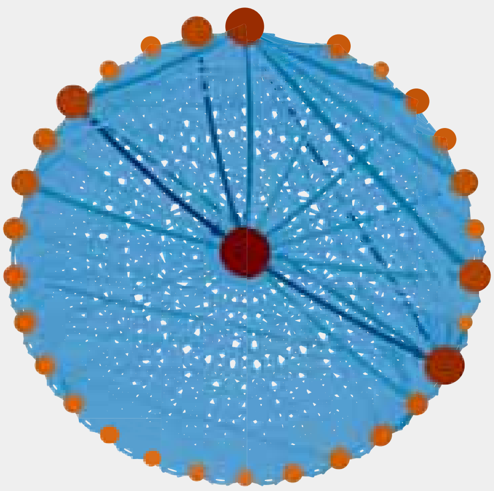
Daily payments in TARGET2 result in a very sparse graph, as roughly only 6% of all possible connections (i.e. distinct payer-payee pairs) are actually present. Also, on a single day, several banks appear as isolated nodes,[63] i.e. they do not make payments. However, the part of the network which is connected has a very short diameter: the distance from any two nodes is on average two, and no more than three, so liquidity can be seen to circulate between *any* two banks very quickly. The distribution of links between banks is very unequal. As shown by Charts 9a and 9b, the 30 largest banks (by transacted volume) have many links and form an almost completely connected network (connectivity 80%). The one hundred smallest banks instead form a much sparser network (several banks have only a few "links", as they send payments to only a few other banks). Therefore, liquidity

62 All payments sent from one bank to another within the pre-defined time interval are aggregated into a single link.

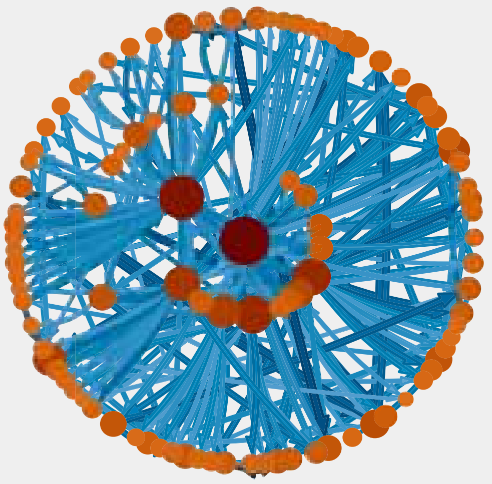
63 These isolated nodes, on average around 5% of the total, may still use TARGET2 for internal liquidity management purposes. Indeed, roughly 30% of the total TARGET2 daily volume may be attributed to the internal liquidity management of banks or "consolidated" banking groups.

Chart 9 Payments between TARGET2 banks

a) Thirty largest banks



b) One hundred smallest banks

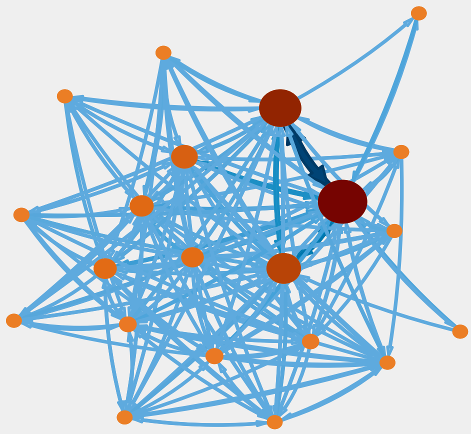


Source: ECB.

can be viewed as flowing between the big consolidated banks and, from these, to the smaller banks.

Depending on the day, different numbers of banking communities may be singled out in TARGET2. These communities are liquidity pools, or relatively self-contained areas of liquidity circulation.[64]

Chart 10 TARGET2 communities



Source: ECB.

As Chart 10 shows,[65] TARGET2 features many small communities, connected via a few large communities, typical of scale-free networks.

Looking closely at these banking communities and their members, one can identify two types of "important"[66] participants: i) community important banks (CIBs), i.e. participants acting as central liquidity hubs within communities, and ii) cross-community important banks (CCIBs), i.e. participants acting as liquidity bridges between communities. A participant may be a CIB, or a CCIB, or both at the same time. Interestingly, if classic centrality measures on the whole undivided network were computed, several CIBs and CCIBs would not be detected. It is therefore essential to examine communities in order not to miss potentially important

64 Communities are identified by splitting the set of participants so as to make the flows within communities as unexpectedly high as possible where (un-)expectation here refers to what one would observe under a null random model, which still respects some fundamental features of the real network.

65 The area covered by a node is proportional to the node's "page rank", which measures the average amount of liquidity that is held at that node. The colouring has a similar (but less formal) meaning: larger nodes are darker.

66 Importance can be measured by classic measures applied to single communities (which are themselves networks), or other measures especially designed to capture the importance of a bank as a liquidity bridge between communities.

participants. Further work will focus on detecting CCIBs and CIBs, as well as on mapping changes in the distribution of communities over time. This could serve to identify structural changes in TARGET2 which may be important from an oversight point of view.

4.2.3.3 Simulations

Numerical simulations of payment flows are a powerful tool for quantifying the impact of extraordinary events on the functioning of payment systems. For example, overseers can examine *both* how a technical failure within TARGET2 affects the system, and how disturbances in TARGET2 affect ancillary systems (or, vice-versa, how disruptions in ancillary systems may affect TARGET2). In particular, such simulations may shed light on the extent of interdependencies between financial infrastructures.

Ideally, counterfactual studies based on simulations should take into account all the relevant specificities of TARGET2 and its ancillary systems, as well as national peculiarities in the transaction-level data. In practice this cannot be done, so simulations can only predict outcomes as a first order approximation. Currently, the TARGET2 overseers are focusing on three key aspects: i) deviations of the TARGET2 Simulator from the real TARGET2 environment, ii) effects of technical failures at important participants, and iii) scenario analysis of liquidity levels in TARGET2.

- The first workstream (i.e. the assessment of how closely the TARGET2 Simulator replicates reality) will reveal how much detail can be reproduced by the Simulator, and whether and how simplifications in the implementation impact on the outcomes of scenario analysis. Ideally, the assessment will quantify the deviations of simulations from the real outcomes, attribute these to individual features of the simulation software, and possibly propose a "work-around".

- The second workstream (i.e. simulations of technical failures at important participants) is a classical application of simulation analysis. The work can be conceptually divided into four stages: identification of important participants, definition of responses by the remaining participants, implementation of these in scenarios and, finally, the interpretation of simulation results. In addition, one could consider simultaneous outages at multiple participants.

- Finally, the third workstream (i.e. scenario analysis of liquidity levels in TARGET2) focuses on understanding how the differences in liquidity provision across countries are captured in the TARGET2 data. Liquidity is provided to the Single Shared Platform via pledges, repurchase agreements or via transfers from the PHAs. Depending on the method used, the available intraday liquidity is either recorded as an intraday credit limit and a daily balance on the participant's account or as a distinct payment. Therefore, it is not straightforward to infer liquidity levels from the TARGET2 data which are comparable on a cross-border basis. A detailed description of liquidity visible in the data and simulations of varying liquidity levels will benefit future projects.

Although the analytical work on transaction-level data presented in this article is still in progress and needs to be developed further, it has already proved itself to be a useful tool for the Eurosystem's ongoing oversight work on the stability and efficiency of TARGET2.

4.3 A SURVEY ON THE ROLE OF TECHNOLOGICAL SERVICE PROVIDERS IN RETAIL PAYMENTS IN ITALY AND IN GREECE

4.3.1 BACKGROUND

The role of technological service providers (TSPs) in retail payments is growing in European countries and in the United States.

TSPs can have a positive impact on the payments industry in terms of increased competition, improved quality of services delivered to end-users and higher economies of scope, e.g. by combining the supply of telephone services with payment services.

However, the involvement of such providers in the retail payment process changes the system's risk profile. The possible loss of effectiveness in the banks' risk management of retail payments has generated the interest of overseers.

4.3.2 OBJECTIVES

In 2009 the Banca d'Italia and the Bank of Greece conducted a survey addressed to significant samples of their banking communities. The survey focused on the role played by TSPs of financial intermediaries in retail payment systems and on the perceived risks of outsourcing to them the handling of retail transactions. More specifically, the survey aimed to: i) assess if and to what extent Italian and Greek banks outsource part or all phases of their electronic retail payment services, ii) identify the main market participants, and iii) measure intermediaries' awareness of the operational risks associated with outsourcing activities to TSPs.

4.3.3 METHODOLOGY

Data was collected through a questionnaire divided into two sections.[67] In the first section, respondents were asked to provide the level of their outsourcing by type of instrument (i.e. credit transfers, direct debits and card payments – including electronic money) and the names of their main TSPs.[68] In the second section of the questionnaire, respondents were asked to assess the perceived operational risk stemming from their outsourcers, i.e. the risk that intermediaries think they run owing to the fact that one or more payment-related activities have been outsourced to TSPs.

Each payment cycle was divided into five phases: pre-transaction, during transaction, clearing and settlement, post-transaction, and common activities. Each phase includes several activities[69] and has a different impact (costs, reputation) in the event of an outage.

The classification of operational risks, based on the Basel II definitions, takes into account five loss events: fraud (internal and external), product (failures and errors), external events (such as natural disasters, vandalism, terrorism), disruptions, and malfunctioning in the processes (such as failed transaction processing). For each activity intermediaries provided a measure of the "perceived risk" on a qualitative scale of four levels (low, medium-low, medium-high and high), with predefined quantitative intervals.[70]

Respondents were requested to estimate, on the basis of actual experience, expected losses arising from the outsourcing of the activity. In particular, they were asked to provide a

67 The questionnaire is available on the Banca d'Italia's website. http://www.bancaditalia.it/sispaga/sms/infrastrutture/bi/indagine_200902;internal&action=_setlanguage.action?LANGUAGE=en

68 For card payment companies, which in Italy are financial intermediaries, the questionnaire distinguishes "acquiring" and "issuing" activities.

69 The activities included in each phase are the following. PRE-TRANSACTION: 1) provision of payment instruments/devices to the front-end customer (payee or payer), 2) provision of hardware to accept payment instruments/devices, 3) provision of software to accept payment instruments/devices, 4) provision of internet security-related technology, 5) e-invoicing; DURING TRANSACTION: 6) transaction authorisation, 7) fraud and risk management services; CLEARING AND SETTLEMENT: 8) preliminary message treatment and clearing, 9) settlement between intermediaries and on customers' accounts; POST-TRANSACTION: 10) statements to intermediaries and to customers, 11) invoice management and reconciliation; COMMON ACTIVITIES: 12) provision of "database" services, 13) provision of network services to intermediaries and to customers, 14) provision of "call centre" services, 15) compliance services.

70 The qualitative scale ranges from one to four (where one stands for the lowest level of perceived risk). For "Frequency" the levels are: low – no more than twice per year; medium-low – no more than six times per year; medium-high – no more than once per month; and high – occurring more than once per month. For "Economic loss" the levels are: low – less than €10,000; medium-low – between €10,000 and 100,000; medium-high – between €100,000 and €1 million; and high – more than €1 million. Reputational loss was evaluated on a purely qualitative scale comprising four levels.

measure of frequency, economic loss and reputational loss of a loss event occurring at least once per year. As for unexpected losses, defined as high economic losses arising from extraordinary events (worst-case scenario), respondents were asked to indicate the activities and events that they deemed to be the most dangerous, together with a description of the worst-case scenario.

4.3.4 DESCRIPTION OF THE SURVEY (SAMPLE)

In Italy the survey collected data from a sample of 149 banks: 60 parent companies of banking groups and 89 banks not belonging to any banking group, including 42 branches of foreign banks. The sample accounts for 83% of the Italian market for electronic retail payments in 2008.[71]

In addition, data was also collected from 25 other financial intermediaries offering retail payment services, including two electronic money institutions and several card payment companies. The second section of the questionnaire was submitted only to medium-sized or large intermediaries, excluding cooperative banks and branches of foreign banks.[72]

In Greece the survey was addressed to 23 credit institutions providing payment services, including payment card issuing and acquiring.[73] Data were provided by 16 banks, accounting for 60% of the Greek market for electronic retail payments in 2008,[74] of which seven banks, accounting for 51% of the market, responded to the second section on risks. However, two of the largest banks providing electronic retail payment services and accounting for 38% of the market did not respond to the questionnaire. Three of the respondent banks provided data regarding card payments through their (wholly owned) subsidiaries operating in the issuing and management of payment cards. In these cases, the subsidiaries were considered addressees of the survey and not TSPs since their activities are covered by the risk management framework of the respondent banks. As for the measurement of the relevance of each TSP, certain banks stated that it was not possible to respond owing to the fact that their cost methodology did not follow the specific segmentation of payment activities used in the questionnaire. In addition, bundling in the pricing of outsourced services did not allow for the cost calculation of individual services; nine intermediaries provided partial estimations, however their accuracy was not further assessed.

4.3.5 FINDINGS

TSPs can perform different activities in the payment process thus providing a wide range of services, including value-added network services for connections between intermediaries or with customers.

The Italian survey identified more than 200 service providers, mostly national companies such as banks, financial intermediaries and information and communication technology (ICT) companies, half of which can be traced back to bank control/ ownership. The overall impression of a quite fragmented market is partially mitigated by the small number of providers with a relevant dimension both in terms of the number of clients and the range of payment services supplied. In Greece, the survey identified 32 ICT companies offering hardware infrastructure and software applications. In both countries the majority of providers are national companies even though large multinationals have a strong presence, particularly in Greece.[75] In Italy national TSPs represent almost 70% of the total, the euro area TSPs account for 13% and non-European companies only 10%; in Greece more than 50%

71 "Accounting Supervisory Report Matrix" data 2008. The percentage was calculated taking into account consolidated data of the groups to which the interviewed banks belonged.
72 Regarding the section on risks, the sample consisted of approximately 100 respondents of which only 54 banks, including the parent companies of the main Italian banking groups, and 25 other financial intermediaries provided information on unexpected losses.
73 Nine credit institutions among the sample had participated in the 2007 survey on non-banks in retail payment systems initiated by the ECB. Intermediaries participating for the first time in such a project (14 banks) received the questionnaire without the section on perceived risks while those involved in the 2007 research received the full version.
74 Blue Book data 2008.
75 In the case of a service provider belonging to a group, the geographical distribution takes into account the country of origin of the parent company.

Table 3 Banks' service providers

(units and percentages)

	Italy	Greece
Pre-transaction	115	27
During transaction	60	7
Clearing and settlement	63	6
Post-transaction	67	5
Common activities	89	11
Total	173	32
of which:		
national companies	70%	44%
non-European companies	10%	41%

of TSPs have headquarters in the euro area and the remainder come almost exclusively from the United States. Eight companies operate in both countries (Table 3).

In Italy, banks and other financial intermediaries outsource almost 75% of the activities of the retail payment cycle, including the most critical phases related to the authorisation of the transaction and the identity/authentication of involved parties, devices and payment orders. Recourse to outsourcing is more common for payment cards and electronic money than for credit transfers and direct debits. In Greece, banks tend to retain the execution and development of payment procedures in house, except for card payments where the recourse to outsourcing is very common and the market is quite concentrated (Tables 4 and 5).

All respondents seem to be aware of the operational risk that may arise as a result of the (possibly high) concentration in outsourcing. From a system perspective, however, dependence on one or a few TSPs might be a concentrated source of risk that cannot be scored by a single intermediary. In general, respondents do not perceive the outsourcing of payment activities as particularly "risky": considering their past experience, they do not expect many loss events to occur in one year nor that such events are likely to trigger large economic losses in the near future. Moreover, the provision of services by TSPs is not perceived as a source of significant reputational risk, despite the fact it represents an important concern for banks. The most feared loss events are fraud and disruptions both in terms of expected and unexpected losses; hence the most critical phase is the "during transaction" phase (Table 6).

Table 4 Banks – recourse to outsourcing

(percentages)

	Exclusive or partial outsourcing		Not outsourced	
	Italy	Greece	Italy	Greece
Payment cards and electronic money	83.6	47.6	16.4	52.4
Credit transfers and direct debits	63.4	10.4	36.6	89.6

Table 5 Banks – recourse to outsourcing (exclusive or partial outsourcing)

(percentages)

	Payment cards and electronic money		Credit transfers and direct debits	
	Italy	Greece	Italy	Greece
Pre-transaction	89.1	50.8	67.4	13.2
During transaction	89.3	64.4	61.6	6.7
Clearing and settlement	82.0	50.5	60.5	6.7
Post-transaction	74.9	37.8	52.8	15.9
Common activities	81.5	42.1	69.0	8.5
All activities	83.6	47.6	63.4	10.4

Table 6 Banks – perceived risks
Expected losses – average values [1]

Loss event	Frequency		Economic loss		Reputational loss	
	Italy	Greece	Italy	Greece	Italy	Greece
Fraud: internal and external	1.12	1.06	1.19	1.22	1.31	1.20
Product: failures and errors	1.06	1.00	1.08	1.00	1.26	1.17
External events	1.01	1.00	1.11	1.17	1.17	1.20
Disruptions	1.16	1.00	1.17	1.28	1.39	1.40
Process malfunctioning	1.09	1.00	1.12	1.20	1.30	1.16

1) Scoring from 1 (low perception) to 4 (high perception).

4.3.6 CONCLUSION

The survey has enhanced the understanding of a relatively unknown segment of the payments industry, as well as the importance of outsourcing in the retail payments sector in Italy and in Greece. In general, the recourse to outsourcing is more common for card payments and electronic money than for credit transfers and direct debits.

When comparing the two countries, outsourcing is much more frequent in Italy than in Greece. This finding can be attributed to the differences in the two samples (the Italian sample is much larger and more representative), as well as the different size of the payments markets in the two countries and the different strategies adopted by intermediaries, probably suggesting different stages of market maturity. In both countries, intermediaries seem to be aware of the operational risk that may arise as a result of the high recourse to and/or concentration in outsourcing; respondents do not perceive the outsourcing of payment activities as particularly "risky". The most feared loss events are fraud and disruptions, both in terms of expected and unexpected losses.

From a European perspective, the integrated dimension of retail markets and the crucial role played by some international companies in card payment transactions might suggest a potential increase of "environmental interdependency", that is, the dependence of operators and/or systems on common infrastructure providers, such as telecommunications providers. The list of main TSPs in the European retail payments sector might complement (and be combined with) the mapping of critical players and system interdependencies in large-value market and payment infrastructures, an essential tool to detect the potential transmission of disruptions and risks between countries.

Among the different types of services outsourced by intermediaries, special attention from the system perspective should be given to the "provision of network services", which is a critical activity for the proper functioning of payment infrastructures. In this respect, the analysis should be extended to sub-contracting, i.e. the transfer of an activity (or a part thereof) from one third-party service provider to another, which is a common practice in the telecommunications sector and might reveal an increasing dependency on one or a few providers.

ANNEXES

ANNEX I EUROSYSTEM OVERSIGHT POLICY DOCUMENTS

GENERAL FRAMEWORK

European Central Bank (2000), *Role of the Eurosystem in the field of payment systems oversight*, June.

European Central Bank (2011), *Eurosystem oversight policy framework*, July.

PAYMENT SYSTEMS AND PAYMENT INSTRUMENTS

European Central Bank (1998), *Report on electronic money*, August.

European Central Bank (1998), *Policy statement on euro payment and settlement systems located outside the euro area*, November.

Committee on Payment and Settlement Systems (2001), *Core Principles for Systemically Important Payment Systems*, Bank for International Settlements, January (adopted by the ECB's Governing Council on 25 January 2001).

European Central Bank (2003), *Electronic money system security objectives*, May.

European Central Bank (2003), *Oversight standards for euro retail payment systems*, June.

European Central Bank (2006), *Business continuity oversight expectations for systemically important payment systems*, June.

European Central Bank (2007), *The Eurosystem policy principles on the location and operation of infrastructures settling euro-denominated payment transactions*, July.

European Central Bank (2007), *Terms of reference for the oversight assessment of euro systemically and prominently important payment systems against the Core Principles*, November.

European Central Bank (2008), *Oversight framework for card payment schemes – standards*, January.

European Central Bank (2008), *The Eurosystem policy principles on the location and operation of infrastructures settling euro-denominated payment transactions: specification of "legally and operationally located in the euro area"*, November.

European Central Bank (2009), *Harmonised oversight approach and oversight standards for payment instruments*, February.

European Central Bank (2010), *Oversight framework for direct debit schemes*, October.

European Central Bank (2010), *Oversight framework for credit transfer schemes*, October.

SECURITIES SETTLEMENT SYSTEMS AND CENTRAL COUNTERPARTIES

European Central Bank (2001), *The Eurosystem's policy line with regard to consolidation in central counterparty clearing*, September.

European Central Bank (2008), *Eurosystem statement on central counterparties and interoperability, terms of reference*, March.

European Central Bank (2008), *Central counterparty clearing (CCP) for OTC credit derivatives,* decision taken by the Governing Council, December.

European System of Central Banks and the Committee of European Securities Regulators (2009), *Recommendations for securities settlement systems and recommendations for central counterparties in the European Union*, May.

ANNEX 2 LINKS TO EUROSYSTEM CENTRAL BANK WEBSITES

In addition to the information provided in this report regarding the Eurosystem's oversight function, more details on oversight can be found on the internet. The table below lists pertinent links to Eurosystem central bank websites.

Table 7 Pertinent links to Eurosystem central bank websites

Central bank	Link to oversight information available on the internet
Belgium	http://www.nbb.be/pub/01_00_00_00_00/01_01_00_00_00/01_01_05_00_00/oversight.htm?l=en
Germany	http://www.bundesbank.de/zahlungsverkehr/zahlungsverkehr.en.php
Estonia	http://www.eestipank.info/pub/en/yldine/pank/stabiilsus/arveldus_valve.html
Ireland	http://www.centralbank.ie/publications/Documents/Payment%20Oversight%20Report.pdf
Greece	www.bankofgreece.gr/Pages/en/PaymentsSystems/default.aspx
Spain	http://www.bde.es/webbde/en/secciones/informes/Publicaciones_an/Memoria_anual_so/anoactual/
France	http://www.banque-france.fr/en/financial-stability/the-missions-of-the-bank-of-france.html
	http://www.banque-france.fr/en/financial-stability/payment-systems-and-market-infrastructure.html
	http://www.banque-france.fr/en/economics-statistics/database/statistics.html
Italy	http://www.bancaditalia.it/sispaga/sms;internal&action=_setlanguage.action?LANGUAGE=en
Cyprus	http://www.centralbank.gov.cy/nqcontent.cfm?a_id=8092
Luxembourg	http://www.bcl.lu/fr/publications/Reglements_de_la_BCL/index.html
Malta	www.centralbankmalta.org/site/interbank_pay_sys.htm
	www.centralbankmalta.org/site/sec_sett_sys.htm
	www.centralbankmalta.org/site/retail_payment_services.html
Netherlands	http://www.dnb.nl/en/payments/oversight/index.jsp
Austria	http://www.oenb.at/en/finanzm_stab/zahlungssystemaufsicht/aufsichtspraxis_der_oenb.jsp
Portugal	http://www.bportugal.pt/en-US/SistemasdePagamento/Pages/default.aspx
Slovenia	http://www.bsi.si/en/payment-systems.asp?MapaId=89
Slovakia	http://www.nbs.sk/en/payment-systems/oversight
Finland	http://www.suomenpankki.fi/en/rahoitusjarjestelman_vakaus/vakausvalvonta/Pages/default.aspx
	http://www.suomenpankki.fi/en/rahoitusjarjestelman_vakaus/kv_yhteistyo/Pages/default.aspx
ECB	http://www.ecb.europa.eu/paym/pol/html/index.en.html

ANNEX 3 STATISTICAL DATA

Statistical data of various overseen infrastructures and arrangements are presented below. The tables and charts show euro area transaction data for 2010 or earlier.[74]

74 Data from Estonia are not included in the charts as it joined the euro area in 2011.

Table 8 Volumes processed by retail payment systems in the euro area in 2010

(millions)

CORE	France	12,816.57
Equens	Netherlands	4,449.12
RPS	Germany	2,662.93
BI-COMP	Italy	2,041.15
SICOI	Portugal	1,937.27
SNEC	Spain	1,586.48
CEC	Belgium	1,170.22
PMJ	Finland	261.04
IPCC and IRECC	Ireland	204.10
EURO SIPS	Slovakia	154.86
DIAS	Greece	78.16
SEPA IKP System	Slovenia	56.13
JCC Payment Cards System	Cyprus	32.29
Cyprus Clearing House	Cyprus	15.60
STEP.AT	Austria	6.62
Malta Clearing House	Malta	5.50
Government Payments System	Cyprus	3.96
ACO	Greece	2.38
JCC Transfer System	Cyprus	0.97

Source: ECB.

Table 9 Values processed by retail payment systems in the euro area in 2010

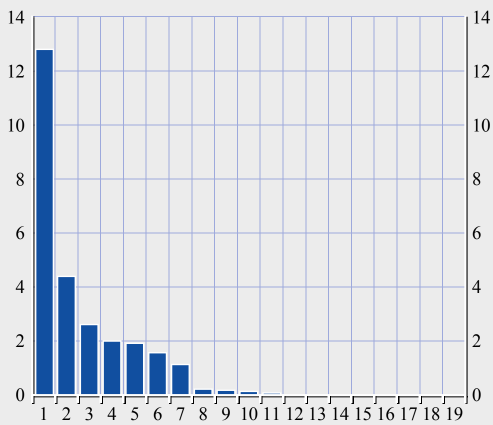
(EUR billions)

CORE	France	5,119.77
BI-COMP	Italy	3,047.84
RPS	Germany	2,299.96
Equens	Netherlands	2,004.96
SNCE	Spain	1,669.71
CEC	Belgium	846.92
SICOI	Portugal	346.59
IPCC and IRECC	Ireland	285.90
PMJ	Finland	233.35
DIAS	Greece	198.72
ACO	Greece	171.55
STEP.AT	Austria	98.47
SEPA IKP System	Slovenia	45.43
Cyprus Clearing House	Cyprus	29.22
Malta Clearing House	Malta	7.37
Government Payments System	Cyprus	4.96
JCC Payment Cards	Cyprus	2.70
JCC Transfer System	Cyprus	1.36
EURO SIPS	Slovakia	0.16

Source: ECB.

Chart 11 Volumes processed by retail payment systems in the euro area in 2010

(billions)

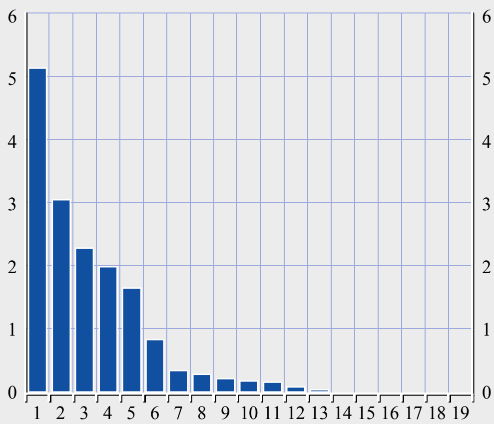


1 CORE
2 Equens
3 RPS
4 BI-COMP
5 SICOI
6 SNEC
7 CEC
8 PMJ
9 IPCC and IRECC
10 EURO SIPS
11 DIAS
12 SEPA IKP System
13 JCC Payments Cards System
14 Cyprus Clearing House
15 STEP.AT
16 Malta Clearing House
17 Government Payments System
18 ACO
19 JCC Transfer System

Source: ECB.

Chart 12 Values processed by retail payment systems in the euro area in 2010

(EUR trillions)

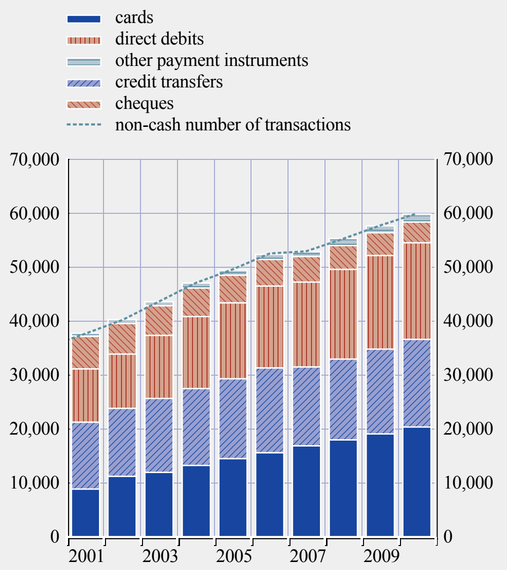


1 CORE
2 BI-COMP
3 RPS
4 Equens
5 SNCE
6 CEC
7 SICOI
8 IPCC and IRECC
9 PMJ
10 DIAS
11 ACO
12 STEP.AT
13 SEPA IKP System
14 Cyprus Clearing House
15 Malta Clearing House
16 Government Payments System
17 JCC Payment Cards
18 JCC Transfer System
19 EURO SIPS

Source: ECB.

Chart 13 Number of non-cash transactions in the euro area per type of payment instrument

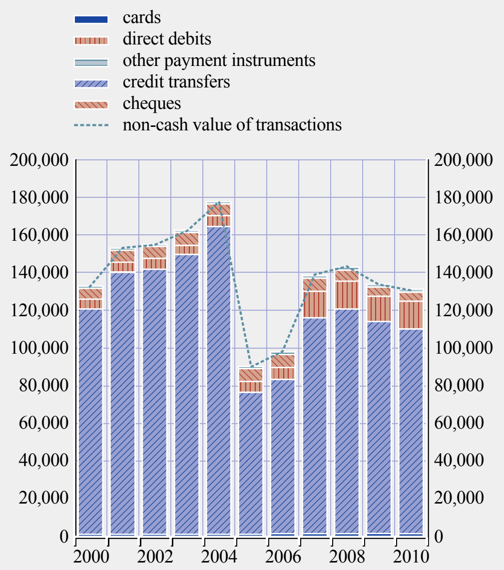
(millions)



Source: ECB.

Chart 14 Value of non-cash transactions in the euro area per type of payment instrument

(EUR billions)



Source: ECB.

Table 10 Number of non-OTC derivatives, repurchase agreements and cash (outright) securities transactions cleared by central counterparties in the euro area in 2010 [1]

(thousands)

	Non-OTC	Repo	Cash	Total
EUREX Clearing AG (Germany)	3,793,833	182	226,484	4,020,499
LCH. Clearnet SA (France)	477,429	1,609	373,755	852,793
EMCF (Netherlands)	-	-	851,008	851,008
CC&G (Italy)	88,485	581	132,827	221,893
MEFF (Spain)	140,449	-	-	140,449
CCP Austria	1,678	-	9,687	11,365
Hellenic Exchanges Holdings SA (Greece)	8,481	2,879	1	11,361
MEFFCLEAR (Spain)	-	4	-	4

Source: ECB.
1) The CCP data presented in Charts 15 and 16 cover the most important CCP business. It is recalled that CCPs also clear other kinds of transactions, such as OTC derivatives transactions.

Table 11 Value of non-OTC derivatives, repurchase agreements and cash (outright) securities transactions cleared by central counterparties in the euro area in 2010

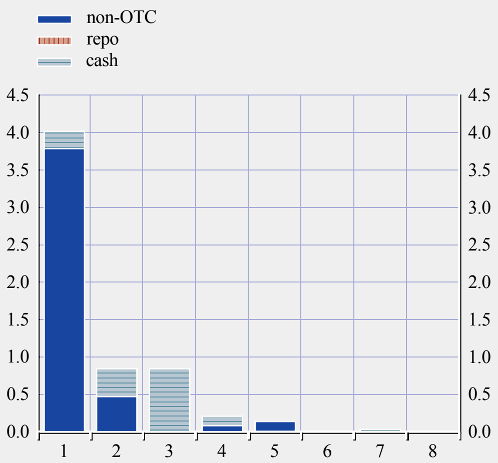
(EUR billions)

	Non-OTC	Repo	Cash	Total
EUREX Clearing AG (Germany)	196,505.80	12,869.51	3,034.75	212,410.05
LCH. Clearnet SA (France)	7,861.14	46,273.08	5,492.36	59,626.57
CC&G (Italy)	1,665.57	17,931.94	2,231.37	21,828.88
EMCF (Netherlands)	-	-	5,523.18	5,523.18
MEFF (Spain)	1,576.18	-	-	1,576.18
MEFFCLEAR (Spain)	-	556.52	-	556.52
CCP Austria	16.99	-	76.56	93.55
Hellenic Exchanges Holdings SA (Greece)	18.44	11.19	0.26	29.88

Source: ECB.

Chart 15 Number of non-OTC derivatives, repurchase agreements and cash (outright) securities transactions cleared by central counterparties in the euro area in 2010

(billions)

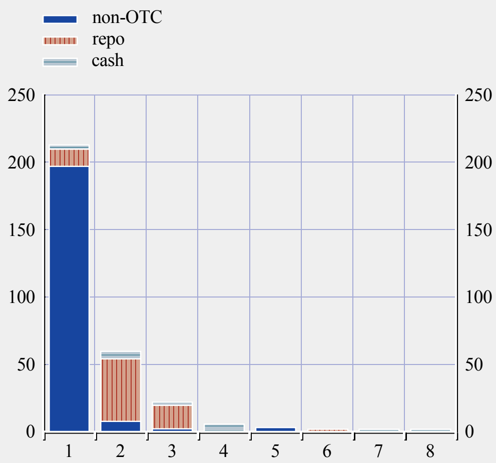


1 EUREX Clearing AG (DE)
2 LCH. Clearnet SA (FR)
3 EMCF (NL)
4 CC&G (IT)
5 MEFF (ES)
6 CCP Austria
7 Hellenic Exchanges Holdings SA (GR)
8 MEFFCLEAR (ES)

Source: ECB.
Note: Non-OTC refers to non-over-the-counter derivatives, repo refers to repurchase agreements and cash refers to cash (outright) securities transactions.

Chart 16 Value of non-OTC derivatives, repurchase agreements and cash (outright) securities transactions cleared by central counterparties in the euro area in 2010

(EUR trillions)



1 EUREX Clearing AG (DE)
2 LCH. Clearnet SA (FR)
3 CC&G (IT)
4 EMCF (NL)
5 MEFF (ES)
6 MEFFCLEAR (ES)
7 CCP Austria
8 Hellenic Exchanges Holdings SA (GR)

Source: ECB.
Note: Non-OTC refers to non-over-the-counter derivatives, repo refers to repurchase agreements and cash refers to cash (outright) securities transactions.

Table 12 Number of delivery instructions processed by central securities depositories in the euro area in 2010

(thousands)

1	Clearstream Banking Frankfurt (Germany)	58,404.00
2	Euroclear Bank (Belgium)	48,218.00
3	Euroclear France	26,122.00
4	Monte Titoli (Italy)	25,906.00
5	Clearstream Banking Luxembourg	19,809.00
6	Iberclear (Spain)	19,714.00
7	Hellenic Exchanges (HELEX) (Greece)	8,054.00
8	Euroclear Finland Ltd	5,079.00
9	Euroclear Netherlands	4,879.00
10	Euroclear Belgium	1,716.00
11	OeKB (WSB system) (Austria)	1,460.00
12	Interbolsa (Portugal)	960.00
13	Nationale Bank van België/ Banque Nationale de Belgique SSS	408.00
14	BOGS (Bank of Greece)	369.00
15	KDD (Slovenia)	267.00
16	CDCR (Cyprus)	218.00
17	CDCP SR (Slovakia)	113.00
18	Regional securities settlement and clearing system (Spain)	49.00
19	SCL Barcelona (Spain)	46.00
20	MSE (Malta)	24.00
21	VP Lux (Luxembourg)	13.00
22	SCL Bilbao (Spain)	2.00
23	SITEME (Banco de Portugal)	2.00
24	SCL Valencia (Spain)	1.00

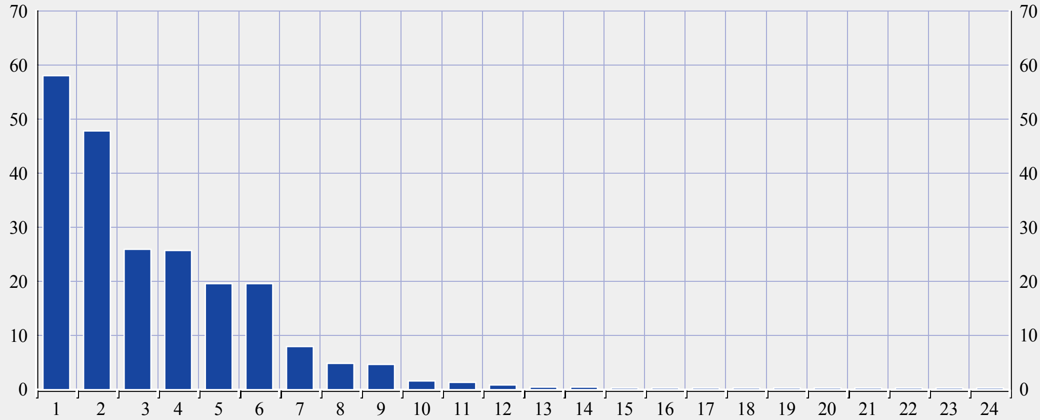
Table 13 Value of delivery instructions processed by central securities depositories in the euro area in 2010

(EUR billions)

1	Euroclear Bank (Belgium)	277,206.60
2	Euroclear France	136,973.63
3	Iberclear (Spain)	88,259.15
4	Monte Titoli (Italy)	77,357.00
5	Clearstream Banking Frankfurt (Germany)	68,192.97
6	Clearstream Banking Luxembourg	62,815.04
7	Nationale Bank van België/ Banque Nationale de Belgique SSS	9,049.59
8	Euroclear Netherlands	4,521.87
9	BOGS (Bank of Greece)	3,537.73
10	Euroclear Finland Ltd	479.06
11	Euroclear Belgium	463.63
12	OeKB (WSB system) (Austria)	221.02
13	SITEME (Banco de Portugal)	197.03
14	VP Lux (Luxembourg)	190.92
15	Interbolsa (Portugal)	150.81
16	Regional securities settlement and clearing system (Spain)	63.95
17	SCL Barcelona (Spain)	63.23
18	Hellenic Exchanges (HELEX) (Greece)	45.01
19	CDCP SR (Slovakia)	32.29
20	KDD (Slovenia)	24.40
21	MSE (Malta)	1.40
22	CDCR (Cyprus)	1.35
23	SCL Valencia (Spain)	0.45
24	SCL Bilbao (Spain)	0.28

Chart 17 Number of delivery instructions processed by central securities depositories in the euro area in 2010

(millions)

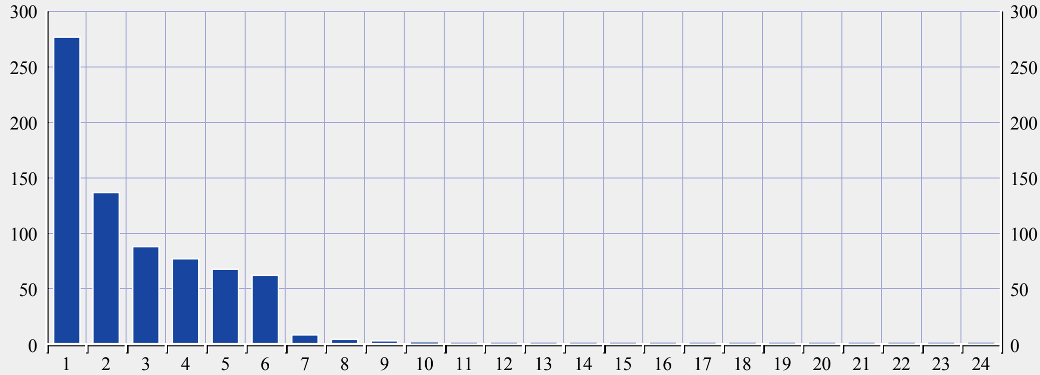


1 Clearstream Banking Frankfurt (DE)
2 Euroclear Bank (BE)
3 Euroclear France
4 Monte Titoli (IT)
5 Clearstream Banking Luxembourg
6 Iberclear (ES)
7 Hellenic Exchanges (HELEX) (GR)
8 Euroclear Finland Ltd
9 Euroclear Netherlands
10 Euroclear Belgium
11 OeKB (WSB system) (AT)
12 Interbolsa (Portugal)
13 Nationale Bank van België/ Banque Nationale de Belgique SSS
14 BOGS (Bank of Greece)
15 KDD (SL)
16 CDCR (CY)
17 CDCP SR (SK)
18 Regional securities settlement and clearing system (ES)
19 SCL Barcelona (ES)
20 MSE (MT)
21 VP Lux (LU)
22 SCL Bilbao (ES)
23 SITEME (Banco de Portugal)
24 SCL Valencia (ES)

Source: ECB.

Chart 18 Value of delivery instructions processed by central securities depositories in the euro area in 2010

(EUR trillions)



1 Euroclear Bank (BE)
2 Euroclear France
3 Iberclear (ES)
4 Monte Titoli (IT)
5 Clearstream Banking Frankfurt (DE)
6 Clearstream Banking Luxembourg
7 Nationale Bank van België/ Banque Nationale de Belgique SSS
8 Euroclear Netherlands
9 BOGS (Bank of Greece)
10 Euroclear Finland Ltd
11 Euroclear Belgium
12 OeKB (WSB system) (AT)
13 SITEME (Banco de Portugal)
14 VP Lux (LU)
15 Interbolsa (PT)
16 Regional securities settlement and clearing system (ES)
17 SCL Barcelona (ES)
18 Hellenic Exchanges (HELEX) (GR)
19 CDCP SR (SK)
20 KDD (SL)
21 MSE (MT)
22 CDCR (CY)
23 SCL Valencia (ES)
24 SCL Bilbao (ES)

Source: ECB.