EUROPEAN CENTRAL BANK

EUROSYSTEM

Eurosystem oversight report

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Contents

Preface

The safety and efficiency of financial market infrastructures (FMIs) are critical for the proper functioning of financial markets and the economy more generally. In particular, the safety aspect of such payment, clearing and settlement systems has been a key focus for central bank overseers and other authorities in recent years, at both euro area level and beyond. Significant effort has been made in this respect to establish robust requirements and standards to enhance safety in terms of the financial and operational resilience of FMIs, against a background of high volumes and values of transactions cleared and settled through FMIs, the increasing interconnectedness between FMIs and across the financial market participants they serve, and a rapidly changing threat landscape as regards cyber risk. The Eurosystem considers it important to implement the established standards, together with the new guidance that has been released in recent years, in a timely and consistent manner in order to strengthen global financial stability, enhance the ability of FMIs to manage various risks and avoid the risk of regulatory arbitrage, thus ensuring a level playing field, especially in the case of FMIs with global reach. Such an approach is particularly important when it comes to cyber risk, which can only be successfully countered through a collective and united effort by the financial industry and the public authorities, both within and across borders.

Since the last Eurosystem oversight report, which was published in 2015, the Eurosystem has continued to pursue the conduct of oversight as one of its basic functions to promote the safety and efficiency of payment, clearing and settlement systems, with a particular focus on the safety (resilience) aspect. At the same time, it has also carried out oversight of payment instruments, as their usage requires a high degree of safety and efficiency to maintain confidence in the euro and promote an efficient economy.

A comprehensive overview of the oversight function of the Eurosystem is set out in the “Eurosystem oversight policy framework”, a revised version of which was published in July 2016. The revised framework reflects changes in the regulatory landscape over recent years and corresponding changes in Eurosystem oversight frameworks and policies across FMIs and payment instruments. By publishing and regularly reviewing this framework, the Eurosystem seeks to increase the transparency of its oversight policies, thereby helping overseen entities to better understand and follow applicable oversight requirements. In the interests of transparency and accountability, which remain important guiding principles for the Eurosystem in conducting its oversight function, this Eurosystem oversight report also aims to inform the public about the specific oversight activities carried out by the Eurosystem since the publication of the previous report.

Executive summary

Payment, clearing and settlement systems are financial market infrastructures (FMIs) which are essential for the proper functioning of market economies. They support the efficient flow of payments for goods, services and financial assets and address the management of financial risks. Moreover, the smooth functioning of these systems is crucial both for the practical implementation of the Eurosystem's monetary policy and for maintaining the stability of the euro, the euro area financial system and the economy in general. Through its oversight function, the Eurosystem aims to ensure the safety and efficiency of FMIs operating in the euro area by applying relevant legal provisions and its own oversight principles and standards.

This fourth Eurosystem oversight report reviews the oversight activities that the Eurosystem (i.e. the European Central Bank (ECB) and the national central banks (NCBs) of European Union (EU) Member States that have adopted the euro) performed in the period from mid-2014 (the completion of the previous Eurosystem oversight report) to the end of 2016; a reflection on activities and developments in the first part of 2017 is also included. To set the overall context, the report also covers developments in the regulatory and policy sphere and on the market side over the reporting period.

Contrary to the period covered in the previous Eurosystem oversight report, which was marked by significant changes to the regulatory environment in response to the financial crisis, the period under review in this report can be seen more as a consolidation phase, with a focus on ensuring that the regulatory changes introduced after the crisis were properly implemented and integrated by overseers and FMI operators. In particular, there was a strong focus on financial and operational resilience over this period, with detailed assessments being carried out by overseers and other authorities to ensure compliance with the newly introduced regulatory requirements and oversight standards. Moreover, additional guidance on selected areas was also developed and published during the period.

As already indicated, FMIs are of great importance to the economy.

- Within the euro area, TARGET2 is the most important payment system. It processes not only the transactions necessary for the implementation of monetary policy, but also those with by far the highest values. At a daily average of €1.73 trillion in 2016, TARGET2 processes in a single business day transactions equal in value to about 20% of euro area annual GDP.

- In the area of securities, one of the most significant developments over the period was the go-live of TARGET2-Securities (T2S) in June 2015. T2S is a Eurosystem infrastructure of systemic importance, providing the European post-trading industry with a single, borderless, pan-European platform for securities settlement in central bank money. By September 2017, 20 central securities depositories (CSDs) had migrated to T2S in five migration waves. A daily average of €437.46 billion was settled in T2S in 2016.

- In the area of clearing, and with a view to ensuring the mitigation of the risks inherent in financial transactions, central counterparties (CCPs) play a key role. In 2016 CCPs located in the euro area cleared a total of €20.5 trillion in cash securities transactions, €118 trillion in repo transactions and €11 trillion in derivatives transactions. Meanwhile, non-euro area EU CCPs cleared a total of €1.1 trillion in cash securities transactions, €57 trillion in repo transactions and €185 trillion in derivatives transactions.

Ensuring the safety and robustness of these FMIs and settlement platforms through oversight is therefore of crucial importance.

Changes in the regulatory environment

Although the scale of regulatory change during the period under review was considerably less than that in the period covered by the previous Eurosystem oversight report, there were nonetheless a number of important advancements on the regulatory side.

At euro area level, the Eurosystem undertook a review of the ECB Regulation on oversight requirements for systemically important payment systems (SIPS Regulation)[1] in 2016, with a public consultation on a revised text launched in December 2016. The main changes being introduced include clarification of the requirements on liquidity risk mitigation and new requirements on cyber resilience, as well as the assignment of additional powers to the competent authorities. At the same time, a proposal for a methodology to calculate sanctions under the SIPS Regulation was released for public consultation. The final revised SIPS Regulation and methodology for calculating sanctions are expected to be published in the latter part of 2017.

Also, at euro area level, the Eurosystem drew up an oversight policy for critical service providers (CSPs) in recognition of the growing importance of these entities for the safety and efficiency of euro area FMIs. The policy was approved by the Governing Council in August 2017.

At EU level, the Central Securities Depositories Regulation (CSDR)[2] entered into force on 17 September 2014, while the related regulatory technical standards (developed by the European Securities and Markets Authority (ESMA) and the European Banking Authority (EBA) in cooperation with the European System of Central Banks (ESCB)) were finalised later and entered into force on 30 March 2017. In line with the CSDR, CSDs had to apply for authorisation within six months of the entry into force of the regulatory technical standards, i.e. by the end of September

[1] Regulation of the European Central Bank (EU) No 795/2014 of 3 July 2014 on oversight requirements for systemically important payment systems (ECB/2014/28) (OJ L 217, 23.7.2014, p. 16).

[2] Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU and Regulation (EU) No 236/2012 (OJ L 257, 28.8.2014, p. 1).

2017. In addition, a number of implementing guidelines under the CSDR have been or are being developed by ESMA in close cooperation with the ESCB.

At the end of November 2016 a proposal for a regulation on a framework for the recovery and resolution of CCPs was put forward by the European Commission. An ECB opinion on the proposal was published on 20 September 2017.[3]

Two proposals for a revised European Market Infrastructure Regulation (EMIR)[4] were adopted by the Commission on 4 May 2017 and on 13 June 2017 respectively. The first proposal, published in May, aims to alleviate the reporting and clearing obligations for some counterparties, applying the principle of proportionality, while the second proposal, issued in June, seeks to enhance the EU framework for authorising and supervising EU CCPs and to strengthen the requirements applicable to systemically important third-country CCPs. The proposal gives the Eurosystem, as central bank of issue for the euro, a greater role in the supervision of both EU and third-country CCPs. An ECB opinion on the proposal was published on 4 October 2017.[5]

At EU level, there have also been important developments in the field of retail payments, where the ESCB continued its cooperation with supervisors in the European Forum on the Security of Retail Payments (SecuRe Pay). In this regard, the European Banking Authority (EBA), in close cooperation with the ECB, relied on the expertise of SecuRe Pay in preparing the draft regulatory technical standards (RTS) on strong customer authentication (SCA) and common and secure communication (CSC) under the revised Payment Services Directive (PSD2). The draft RTS underwent a market consultation in 2016 before being submitted as part of a final report to the European Commission for adoption in 2017. During this period, guidelines on major incidents reporting and guidelines on security measures for operational and security risks were also prepared and published for consultation with the market. The former set of guidelines has already been finalised and published, while the latter will be finalised towards the end of 2017. Both guidelines will apply from 13 January 2018.

At international level, additional guidance on CCP resilience, recovery and resolution was drawn up by global standard-setting bodies during the period under review. The final reports in this respect were published by the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) (jointly) and by the Financial Stability Board (FSB) at the beginning of July 2017. In addition, in view of the increasing cyber threat that has emerged in recent years, the CPMI-IOSCO Guidance on cyber resilience for FMIs was published in June 2016.

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3 Opinion of the European Central Bank of 20 September 2017.

4 Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC derivatives, central counterparties and trade repositories (OJ L 201, 27.7.2012, p. 1).

5 Opinion of the European Central Bank of 4 October 2017.

Eurosystem oversight activities

The main Eurosystem oversight activities over the period are set out below.

In the field of payment systems, the competent authorities, the ECB for TARGET2, EURO1 and STEP2-T and the Banque de France for CORE(FR), conducted the first comprehensive assessment exercise under the SIPS Regulation. The Eurosystem also launched a coordinated assessment of non-systemically important retail payment systems during the period under review.

In the field of securities settlement systems (SSSs), many Eurosystem central banks conducted oversight assessments against the CPMI-IOSCO Principles for financial market infrastructures (PFMI). They also monitored and assessed changes to the respective systems, the most notable during the period under review being the changes related to migration of CSDs to T2S. In relation to T2S, the Eurosystem, in cooperation with other authorities, concluded an assessment of the T2S design ahead of its go-live in June 2015. Thereafter, the Eurosystem has launched its oversight activities for T2S in live operation, including ongoing monitoring of the phased migration process.

In the field of CCPs, the Eurosystem has continued to contribute to the activities of the supervisory colleges established under EMIR, in particular by supporting the national competent authorities (NCAs) in the authorisation of CCPs, in its capacity as central bank of issue for the euro and through the oversight capacity of its members.

In the field of payment instruments, the Eurosystem launched an assessment of card payment schemes against the respective Eurosystem guide, which had been revised in 2015. The exercise will be completed in the second quarter of 2018. The Eurosystem also conducted for the first time an oversight assessment of the European Payments Council's (EPC's) SEPA Direct Debit Core Scheme. The scheme is being monitored to ensure that the oversight recommendations issued in the context of the assessment are implemented.

Furthermore, during the period under review, the Eurosystem has been involved in the cooperative oversight of CSPs, such as SWIFT, and also conducted a further survey on correspondent banking, the outcome of which was published by the ECB in February 2017.

Future work priorities

The oversight priorities of the Eurosystem in the period ahead will continue to focus on the financial and operational resilience of FMIs and payment instruments. Eurosystem central banks will work together with FMI operators and relevant authorities for payment instruments to ensure that infringements identified and/or recommendations issued in the context of oversight assessments will be addressed in an appropriate manner and in due time to preserve the safety and efficiency of the underlying systems and instruments. Against the backdrop of increasing financial innovation in the market and the corresponding drive towards greater efficiencies through developments in distributed ledger technologies, as well as the move towards instant payments, overseers will be concentrating on these new developments, looking at them from both a safety and efficiency perspective and taking care to ensure that the emergence of systemic risks in the euro area is avoided. Furthermore, the cyber threats posed to all FMIs and payment instruments, as well as financial markets and their participants more generally, will remain at the fore of the Eurosystem oversight agenda in the coming years. In this context, cooperation with other authorities and system operators will be deepened and enhanced in order to continue to work together against this evolving and borderless threat.

Finally, the United Kingdom's decision to leave the EU is a development that has required, and will continue to require, the attention of Eurosystem overseers. The Eurosystem is assessing the implications of its departure for euro area FMIs, particularly from the perspective of the impact on UK-based participants in these infrastructures. In addition, from the Eurosystem's perspective, it will be important not to step back in terms of the FMI oversight arrangements that have been established at EU and global levels since the financial crisis. In this regard, the European Commission's proposal for revising EMIR, adopted on 13 June 2017, foresees a strengthened framework for the supervision of third-country CCPs. In order to provide the legal basis for the Eurosystem to fulfil the role foreseen for it as central bank of issue of the euro under the future enhanced third-country supervision framework, the ECB's Governing Council adopted on 22 June 2017 a recommendation[6] for a Decision amending Article 22 of the Statute of the ESCB.[7] A more meaningful role for the central bank of issue under the proposed enhanced supervisory framework for CCPs is justified due to the risks that could potentially be posed by the malfunctioning of a CCP, or by certain actions taken by a CCP in the area of risk management, to the performance of the basic tasks to be carried out through the Eurosystem, in particular the definition and implementation of the monetary policy of the Union and the promotion of the smooth operation of payment systems. These risks could ultimately have an impact on the pursuit of the Eurosystem's primary objective of maintaining price stability.

6 Recommendation for a Decision of the European Parliament and of the Council of 22 June 2017.

7 Protocol (No 4) on the Statute of the European System of Central Banks and the European Central Bank (OJ C 326, 26.10.2012, p. 230).

Introduction

The fourth Eurosystem oversight report 2016 describes how the Eurosystem has exercised its oversight responsibilities and conducted oversight activities in the period from June 2014 to the end of 2016. The report also reflects on regulatory, policy, market and technical developments during that period which are relevant from an oversight perspective. In some cases, reference is also made to important activities/developments that took place in the first part of 2017.

The report is structured as follows:

- Chapter 1 provides an overview of the Eurosystem's oversight function: the institutional and legal framework and the respective oversight standards;
- Chapter 2 elaborates on the oversight activities that the Eurosystem carried out under its various areas of responsibility during the reporting period;
- Chapter 3 provides an outlook for the area of Eurosystem oversight for the period ahead;
- Chapter 4 concludes with a set of special articles on topics relevant to Eurosystem oversight.

1 The Eurosystem's oversight responsibilities

A detailed description of the Eurosystem's oversight framework is set out in the policy statement entitled "Eurosystem oversight policy framework", the most recent version of which was published in July 2016. The policy framework describes, among other things, the rationale for the Eurosystem's oversight function and the scope of its oversight. The scope includes oversight of financial market infrastructures (FMIs), more specifically payment systems, securities settlement systems/central securities depositories (SSSs/CSDs) and central counterparties (CCPs), as well as payment instruments/schemes and other infrastructures and service providers, including TARGET2-Securities (T2S).

The policy framework explains how Eurosystem oversight activities are conducted, the allocation of roles within the Eurosystem and cooperation between the Eurosystem and other relevant authorities. The legal basis for Eurosystem oversight is presented in the box below.

Box 1

The legal basis for Eurosystem oversight

The legal basis for the Eurosystem's oversight function is enshrined in the Treaty on the Functioning of the European Union[8] and in the Statute of the ESCB,[9] which provide for the Eurosystem to conduct oversight as part of its mandate. Under Article 127(2) of the Treaty and Article 3(1) of the Statute of the ESCB, one of the main tasks of the European System of Central Banks (ESCB) is to promote the smooth operation of payment systems. The oversight role is one way in which the Eurosystem fulfils this mandate, complementary to its roles as a catalyst for market-led change and operator of payment and settlement facilities.

Article 22 of the Statute of the ESCB[10] (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 regulatory powers to pursue the Eurosystem's oversight objectives. On 3 July 2014, the ECB used its regulatory powers in the field of payment systems oversight to adopt an ECB Regulation on oversight requirements for systemically important payment systems – the SIPS Regulation – that covers systemically important large-value payment systems (LVPS) and retail payment systems (RPS) operated in the euro area by both central banks and private entities. The SIPS Regulation implements the Principles for financial market infrastructures (PFMI), as published by the Committee on Payments and Market Infrastructures (CPMI) and the International

8 Treaty on European Union and Treaty on the Functioning of the European Union (consolidated versions) (OJ C 326, 26.10.2012, p. 1).

9 Protocol (No 4) on the Statute of the European System of Central Banks and the European Central Bank (OJ C 326, 26.10.2012, p. 230).

10 On 22 June 2017 the ECB adopted a recommendation for a Decision of the European Parliament and of the Council amending Article 22 of the Statute of the ESCB. The proposed amendment, which is described in more detail in Section 1.2.3, would provide the ECB with regulatory competence over CCPs.

Organization of Securities Commissions (IOSCO) in April 2012. In the event of non-compliance, it entitles the Eurosystem to request corrective measures from the system operators and/or to apply financial sanctions. The SIPS Regulation is covered in more detail in the following sections.

1.1 Implementation of oversight at Eurosystem level

The Eurosystem performs its oversight tasks on the basis of requirements, standards and recommendations that are often based on global standards or have been developed by the Eurosystem itself, sometimes in cooperation with other central banks and authorities. Reliance on these standards and recommendations allows a harmonised and systematic oversight of payment, clearing and securities settlement systems, as well as payment instruments, other infrastructures and service providers, and facilitates the comparison of assessments. The Eurosystem is transparent on its policies and helps system operators to better understand and observe the applicable requirements and standards.

In the oversight of individual systems and schemes, the Eurosystem follows a three-step process in which it:

1. collects relevant information;
2. assesses the information against its oversight standards and recommendations;
3. takes action and induces change where necessary.

On the basis of the assessment results, and where a particular FMI does not have the required level of compliance or the necessary degree of safety and efficiency, the Eurosystem takes action and induces change using the range of tools at its disposal. The tools include moral suasion, public statements, influence stemming from the Eurosystem's participation in FMIs and cooperative oversight arrangements, and the potential to issue sanctions against systemically important payment systems (SIPS). These tools are a function of the powers granted to the Eurosystem and individual NCBs in relation to particular categories of overseen entities/services.

1.1.1 Allocation of roles within the Eurosystem

To achieve effective and efficient oversight, the Eurosystem shares oversight responsibilities to ensure that oversight activities are coordinated and that its policy stance is applied consistently throughout the euro area. The Eurosystem assigns a leading role to the Eurosystem central bank that is best placed to oversee individual systems and instruments. This role may be assigned on the basis of proximity to the overseen entity or the system may be legally incorporated within the jurisdiction of a particular central bank or national laws may attribute specific oversight responsibilities to a specific central bank. The latter is typically the case for systems with a clear national anchor. For systems that have no national anchor, the body entrusted with oversight responsibility is the NCB of the country where the system is legally incorporated, unless the Governing Council of the ECB decides otherwise and assigns the primary oversight responsibilities to the ECB.

Table 1

Competent authority and lead overseer of FMIs, payment instruments and critical service providers

	Competent authority/lead oversight role	
	ECB	NCB*
TARGET2	✓	
EURO1	✓	
STEP2-T	✓	
CORE(FR)		✓ a)
CLS	✓ b)	
Central securities depositories (CSDs)/ Securities settlement systems (SSSs)*		✓
Central counterparties (CCPs)*		✓
Retail payment systems		✓
National card payment schemes		✓
Visa Europe	✓	
American Express	✓	
MasterCard Europe		✓
SEPA credit transfer (SCT)/SEPA instant credit transfer (SCT Inst)/SEPA direct debit (SDD)	✓	
TARGET2-Securities (T2S)	✓	
SWIFT		✓
SIA/COLT		✓

*In the case of CSDs/SSSs and CCPs, oversight may be carried out by/in cooperation with other national authorities for some euro area countries.
a) National competent authority (NCA).
b) Within the Eurosystem, the ECB has primary oversight responsibility for the settlement of the euro by CLS, formerly the Continuous Linked Settlement system, in close cooperation with the euro area NCBs of the Group of Ten (G10). The Federal Reserve System has primary responsibility for the cooperative oversight arrangement for CLS in general. The arrangement consists of the G10 central banks and the central banks whose currencies are settled in CLS and is subject to a “Protocol”.

1.1.2 Cooperative oversight and cooperation with other authorities

Cooperation with overseers and other authorities at international level is an instrument used to address the importance of interdependencies and thereby ensure that cross-border and cross-sectoral risks are effectively monitored and addressed, without imposing potentially duplicative or inconsistent requirements.

1.2 Legal environment and regulatory/policy developments

The Eurosystem’s oversight function is influenced by international standards as well as relevant laws and regulations at European level. In its field of competence, the Eurosystem is consulted on draft legislation as part of the EU legislative procedure and has provided its opinion in the past, including from an oversight perspective. The ECB and a number of euro area NCBs also contribute to the work of global committees on international standards. Since the publication of the last Eurosystem oversight report in 2014, the following developments of note have taken place in the legal/regulatory environment.

1.2.1 Review of the ECB Regulation on oversight requirements for systemically important payment systems

As mentioned earlier, the Eurosystem implemented the PFMI in a legally binding way via the SIPS Regulation,[11] which entered into force in August 2014. The SIPS Regulation covers both LVPS and RPS of systemic importance and applies to SIPS operated by Eurosystem NCBs and private entities. The requirements set out in the regulation are aimed at ensuring efficient management of legal, credit, liquidity, operational (including cyber), general business, custody, investment and other risks, as well as sound governance arrangements. The SIPS Regulation provides that, in the event of non-compliance, the competent authority may impose sanctions and corrective measures on system operators. Following a periodic review process, an amended SIPS Regulation is expected to be published in the latter part of 2017. It will set clearer requirements on liquidity risk mitigation and new requirements on cyber resilience and will assign additional powers to the competent authorities. To complement the SIPS Regulation and to provide transparency on the application of sanctions and corrective measures, the ECB shall also publish legal instruments on the calculation of sanctions and the procedures for imposing sanctions and corrective measures. The amendments to the SIPS Regulation and the methodology for calculating sanctions have undergone a two-month public consultation.

1.2.2 International standards

In recent years considerable work has been conducted on international standards applicable to FMIs, and the ECB, together with a number of Eurosystem central banks, has participated in a number of the related international work streams. An overview of some of these work streams is given below.

- **CCP-related work streams**

In 2015, at the request of Group of Twenty (G20) finance ministers and governors, relevant global standard-setting bodies (the Basel Committee on Banking Supervision (BCBS), the Financial Stability Board (FSB), CPMI and IOSCO) embarked on a joint “CCP work plan” with the objective of further strengthening safeguards for central clearing. The main focus of the CCP work plan was on assessing whether existing international requirements for CCP resilience, recovery and resolution had been fully implemented and whether there may be a need for additional guidance. In addition, interdependencies in the central clearing network between CCPs, their participants and service providers were explored in greater

11 Regulation of the European Central Bank (EU) No 795/2014 of 3 July 2014 on oversight requirements for systemically important payment systems (ECB/2014/28) (OJ L 217, 23.7.2014, p. 16).

depth. Most deliverables of the CCP work plan were finalised before the G20 summit in July 2017 and included:

- a CPMI-IOSCO report on “Resilience of central counterparties (CCPs): Further guidance on the PFMI”;
- a CPMI-IOSCO revised report on “Recovery of financial market infrastructures”;
- a BCBS/CPMI/FSB/IOSCO report on “Analysis of central clearing interdependencies”;
- an FSB report on “Guidance on central counterparty resolution and resolution planning”.

Going forward, the main priorities will include (i) continued monitoring of implementation of the PFMI regarding resilience and recovery of CCPs and finalisation of a framework on supervisory stress testing for CCPs; (ii) implementation of the FSB’s Key Attributes of Effective Resolution Regimes for Financial Institutions consistent with the expectations regarding CCP resolution and resolution planning expanded upon in the FSB guidance, as well as further work on financial resources to support resolution and on the treatment of CCP equity in resolution; (iii) additional analysis of central clearing interdependencies to assess whether the key findings are stable over time; and (iv) further work to assess incentives to clear centrally arising from the interaction of post-crisis reforms.

- **Cyber resilience-related work streams**

With the increase in the sophistication, frequency and persistence of cyber threats, central banks, as well as other authorities, have stepped up their efforts to foster cyber security in the financial sector. In June 2016 CPMI and IOSCO released their “Guidance on cyber resilience for financial market infrastructures” (Cyber Guidance),[12] which aims to raise the cyber maturity of FMIs around the world.

The Eurosystem implemented the Cyber Guidance by developing the Eurosystem’s cyber resilience strategy (see Section 3.2) as part of its oversight activities, with the aim of strengthening the overall cyber resilience of FMIs across multiple euro area jurisdictions.

Furthermore, public authorities have recognised that the interconnectedness of the global financial system requires a strategically aligned approach to cyber security at international level. Hence, the Group of Seven (G7) countries (Canada, France, Germany, Italy, Japan, the United Kingdom and the United States) created a G7 Cyber Expert Group that was tasked with drawing up a list of fundamental elements of cyber security for the financial sector. The G7 Finance Ministers and Central Bank Governors endorsed the “G7 fundamental elements of cybersecurity for the financial sector”[13] in October 2016.

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[12] Cyber Guidance, June 2016.

[13] G7 fundamental elements of cybersecurity for the financial sector, October 2016.

1.2.3 Review of the European Market Infrastructure Regulation

EU central counterparties (CCPs) are regulated under the European Market Infrastructure Regulation (EMIR), which implements internationally agreed risk management principles (the PFMI) and establishes a framework for the collective supervision of CCPs.

In 2015 the ECB published a response to the Commission's public consultation on the review of EMIR,[14] focusing on the need to improve the quality of data reporting and to address the gaps between EMIR and the international guidance adopted by CPMI-IOSCO. The ECB response also stressed the need to acknowledge the specific role of the Single Supervisory Mechanism (SSM) by explicitly recognising that two different votes should be expressed in CCP colleges where the ECB is represented both as the supervisor of the most important clearing members and as the central bank of issue (CBI). Also in 2015 the Eurosystem contributed to an ESCB report on the need for measures to facilitate the access of CCPs to central bank liquidity facilities (the submission of this report was required under Article 85 of EMIR).[15]

Implementation of EMIR has continued to progress. Since 21 June 2016 certain types of standardised interest rate swaps (IRSs) are required to be cleared through CCPs. A similar obligation for standardised credit default swaps (CDSs) entered into force in February 2017. On 4 October 2016 the Commission adopted a delegated regulation specifying how margin should be exchanged for over-the-counter (OTC) derivative contracts that are not cleared by a CCP. The delegated regulation was subject to a period for objection by the European Parliament and the Council before its publication in the Official Journal of the European Union.

On 4 May 2017 the Commission published a first set of amendments to EMIR, covering the clearing obligation, the suspension of the clearing obligation, the reporting requirements, the risk mitigation techniques for OTC derivatives contracts not cleared by a central counterparty, the registration and supervision of trade repositories and the requirements for trade repositories.[16] A second set of amendments was published on 13 June 2017, proposing significant changes to the procedures and authorities involved in the authorisation of CCPs and to the requirements for the recognition of third-country CCPs.[17] In particular, the proposal envisages an enhanced role for the relevant central banks of issue of the EU, including the Eurosystem. Under the proposed amendments to the EMIR framework, the Eurosystem will be able to continue to fulfil its role as the central bank issuing the single currency. The amendments will allow the Eurosystem to monitor and address risks associated with central clearing activities that could affect the conduct of

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14 European Central Bank response to the European Commission of 2 September 2015.

15 Report of the ESCB, 2015.

16 European Commission first set of amendments of 4 May 2017.

17 European Commission second set of amendments of 13 June 2017.

monetary policy, the operation of payment systems and the stability of the euro. The ECB issued its opinion on the proposal to amend EMIR on 4 October 2017.[18]

On 22 June 2017 the ECB Governing Council adopted a Recommendation for a Decision of the European Parliament and of the Council amending Article 22 of the Statute of the ESCB.[19] If adopted, this amendment would provide the ECB with regulatory competence over securities clearing systems, in particular CCPs, thereby allowing the Eurosystem as CBI for the euro to carry out the role envisaged under the Commission's proposals to revise EMIR. Together, the Commission's legislative proposals and the ECB's recommendation to amend the Statute of the ESCB seek to ensure the safety and soundness of CCPs that are of systemic relevance for financial markets across the Union.

1.2.4 Draft EU legislative proposal on CCP recovery and resolution

On 28 November 2016 the European Commission issued a proposal for a Regulation of the European Parliament and of the Council on a framework for the recovery and resolution of central counterparties. The proposed regulation provides for harmonised EU rules for exceptionally severe market events where the stringent EU prudential requirements for CCPs set out in EMIR – designed to enable CCPs to withstand extreme but plausible conditions – may not be sufficient to avert CCP failure. The need to establish effective arrangements for such tail-of-tail scenarios has been recognised across the G20 jurisdictions and spurred the development of international guidance on FMI recovery and resolution in 2014, which was recently updated and further refined, as mentioned in Section 1.2.2 above. Against this background, the Eurosystem strongly supports the European Commission's initiative to set up a dedicated EU framework for CCP recovery and resolution as an integral piece of legislation for EU financial markets in which CCPs play a critical role as key risk managers in many market segments and the continuity of their critical functions is essential for EU financial stability. The ECB issued its legal opinion on the proposal on 20 September 2017.[20]

1.2.5 Central Securities Depositories Regulation

In the area of CSDs and SSSs, the Central Securities Depositories Regulation (CSDR)[21] entered into force on 17 September 2014. Over the reporting period, central banks of the ESCB and EU securities regulators have worked with ESMA on developing regulatory technical standards (RTS) to implement the CSDR. Similarly, the European Banking Authority (EBA), in cooperation with certain central banks and

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18 Opinion of the European Central Bank of 4 October 2017.

19 Recommendation for a Decision of the European Parliament and of the Council of 22 June 2017.

20 Opinion of the European Central Bank of 20 September 2017.

21 Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU and Regulation (EU) No 236/2012 (OJ L 257, 28.8.2014, p. 1).

banking supervisors, has prepared the RTS on CSD prudential requirements. On 11 November 2016 the European Commission endorsed the CSDR RTS as prepared by ESMA and the EBA. The RTS were subsequently reviewed by the European Parliament and by the Council and entered into force on 30 March 2017. CSDs had to apply for authorisation under the CSDR within six months after entry into force of the RTS, i.e. by the end of September 2017.[22]

ESMA initiated work on a number of CSDR guidelines in close cooperation with the ESCB (as required under the CSDR) at the beginning of 2016. On 23 March 2017 ESMA published guidelines on access by a CSD to the transaction feeds of CCPs and trading venues[23] and guidelines on CSD participant default rules and procedures.[24] On 1 June 2017 ESMA published two sets of guidelines on the process for the collection, processing and aggregation of the data and information necessary for the calculation of the indicators to determine (1) the most relevant currencies in which settlement takes place; and (2) the substantial importance of a CSD for a host Member State. On 11 July 2017 ESMA published guidelines on cooperation between authorities under the CSDR.[25] In addition, ESMA publishes and periodically updates Questions and Answers on the CSDR.

The main objective of the CSDR is to ensure safe, efficient and smooth settlement. To reach this objective, the CSDR defines uniform obligations to be imposed on market participants regarding certain aspects of the settlement cycle and discipline and provides common prudential and supervisory requirements for CSDs and other institutions providing banking services ancillary to securities settlement. To a large extent, the CSDR provisions transpose the PFMI, for instance in the areas of organisational requirements and requirements on settlement finality, risk mitigation and default management. This represents a paradigm shift from soft law, based on standards/recommendations and moral suasion to hard law, based on strict requirements, administrative sanctions and penalty regimes. The CSDR ensures consistency as regards the requirements and the way they are applied across all market participants and CSDs in the EU. Furthermore, the CSDR harmonises the supervision of CSDs and enhances cooperation among authorities, both at domestic and cross-border level, by formalising and harmonising it. The cooperation among authorities stems from the designation under the CSDR of competent and relevant authorities that are involved in the authorisation and supervision of CSDs; the CSDR recognises the oversight function and designates overseers as relevant authorities.

The Eurosystem, as a relevant authority, is involved in the authorisation and regular supervision of CSDs and interoperable links under the CSDR. The Eurosystem central banks qualify as relevant authorities in their capacity as overseers and cash-

[22] With the exception of the RTS on settlement discipline, which are still pending adoption by the European Commission. However, the later date of entry into force of these specific RTS did not influence the date when CSDs had to apply for authorisation.

[23] Guidelines on access by a CSD to the transaction feeds of CCPs and trading venues.

[24] Guidelines on CSD participants default rules and procedures under Regulation (EU) No 909/2014.

[25] Guidelines on cooperation between authorities under Articles 17 and 23 of Regulation (EU) No 909/2014.

leg central banks.[26] Furthermore, the Eurosystem qualifies as the CBI for the euro.[27] An internal Eurosystem framework defining cooperation for the Eurosystem CBI function has been drawn up. For euro area CSDs, the Eurosystem CBI function is represented by the respective local NCB, while the ECB represents the Eurosystem as the CBI authority for non-euro area CSDs. In order to reach a joint Eurosystem view, the framework also details the procedural aspects of the Eurosystem's involvement in the authorisation and regular supervision of CSDs.

1.2.6 The revised Payment Services Directive

In recent years, the retail payments market has dramatically changed with the emergence of new types of services and new players driven by technological innovation, mainly in the area of electronic and mobile payments. This led to the adoption of a revised Payment Services Directive (PSD2)[28] in 2015 that regulates new types of payment service providers (PSPs), namely account information service providers (AISPs) and payment initiation service providers (PISPs), both commonly known as third-party payment service providers (TPPs). The revised Directive aims to (i) ensure a level playing field and lower entry barriers for PSPs, thereby increasing competition; (ii) ensure that payments are carried out in a safe and secure manner to protect consumers; (iii) contribute to a more integrated and efficient European payments market; and (iv) reduce prices for payments.

PSD2 has conferred on the EBA, in close cooperation with the ECB, the mandate to develop RTS on strong customer authentication and common and secure open standards of communication and two sets of guidelines on (i) security measures for operational and security risks and (ii) major incident reporting. In addition, the EBA and ECB have taken the initiative to develop a third set of guidelines to harmonise the reporting of fraud statistics on means of payment by PSPs according to a requirement of PSD2.

In developing the RTS and guidelines, the two institutions relied on the expertise of a pre-existing common platform – the European Forum on the Security of Retail Payments (SecuRe Pay), which comprises EU/EEA overseers and supervisors. An overview of the key aspects for the finalisation of the RTS and guidelines is provided below, and more information about the work of SecuRe Pay in respect of the RTS is provided in Section 4.3.

An overview of the interaction between existing regulatory frameworks for payments and those foreseen under PSD2 is provided in the chart below.

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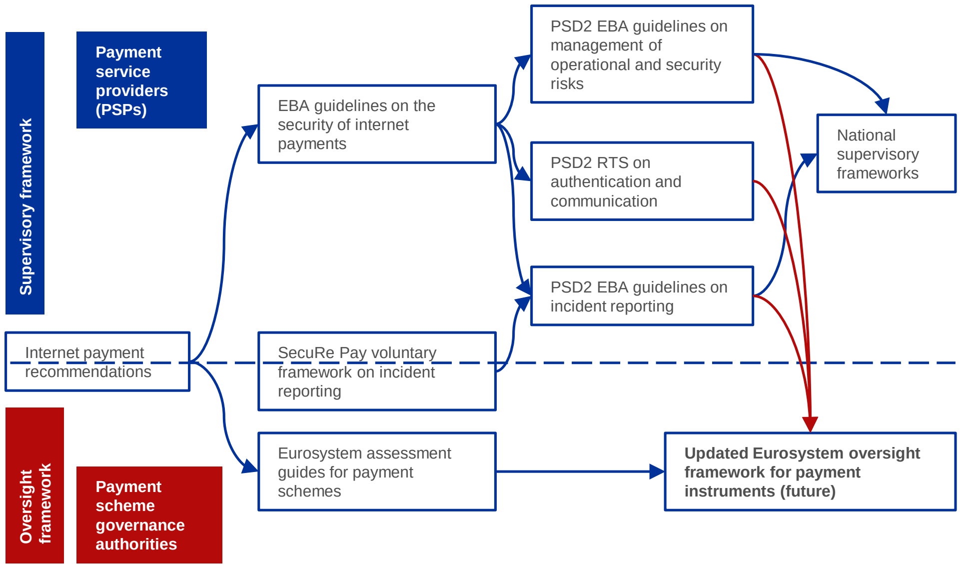
26 The cash-leg central bank is the central bank in whose books the cash leg of a securities settlement system operated by the CSD is settled.

27 The central banks that qualify CBIs are those that issue the most relevant currency in which settlement takes place.

28 Directive (EU) 2015/2366 of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC (OJ L 337, 23.12.2015, p. 35).

Figure 1

Overview of interaction between oversight and supervisory frameworks



Box 2

Key aspects of PSD2 RTS and guidelines

- **Article 98 of PSD2 – RTS on strong customer authentication (SCA) and common and secure open standards of communication (CSC):** The RTS were submitted to the European Commission on 22 February 2017 for adoption. The objective of these standards is to ensure an appropriate level of security and convenience for payers when accessing a payment account online or initiating an electronic payment, while maintaining fair competition among all PSPs and allowing innovative means of payments. These RTS set security requirements for authentication, particularly SCA, define exemptions to SCA, and set requirements for the protection of payment service users' security credentials and requirements for the communication between the PSPs and the TPPs.

- **Article 96 of PSD2 – guidelines on major incident reporting:** The guidelines, published on 27 July 2017, address: (a) *PSPs*, regarding the classification and notification of major operational or security incidents; and (b) *competent authorities*, regarding the criteria to assess their relevance, as well as the details that should be shared with other domestic authorities. After existing scenarios and national practices had been evaluated, the draft guidelines were published for consultation. The consultation period ended in March 2017. This enabled the drafting group to check the early reaction of the market to the draft requirements and to benefit from any suggestions for improvement prior to their publication as final guidelines. The latter will become applicable to PSPs on 13 January 2018. The Eurosystem will, in the meantime, align incident reporting practices set out in oversight standards for retail payment systems and schemes with the principles of the guidelines.

- **Article 95 of PSD2 – guidelines on security measures for operational and security risks:** The market was given until 7 August 2017 to respond to the consultation paper on the draft guidelines. The security measures within the guidelines aim to mitigate operational and security risks related to the provision of payment services. These measures are further detailed as requirements for the establishment, implementation and monitoring of the security measures, including certification processes that PSPs should comply with. The guidelines are being amended on the basis of the input received from the market and will be published by the EBA at the end of 2017. The guidelines will become applicable to PSPs on 13 January 2018.
- **Article 96(6) of PSD2 – own-initiative guidelines on fraud statistics reporting:** A consultation paper on the draft guidelines has been published, and the market has until 3 November 2017 to submit comments. The guidelines address (a) *PSPs* (except for AISPs) regarding requirements for the reporting of payment fraud to their home competent authority, and (b) *competent authorities* regarding requirements for the reporting of aggregated payment fraud statistics to the ECB and EBA. The guidelines define "fraudulent transactions" and set reporting data breakdowns by payment instrument and/or service for the different types of PSPs, as well as a methodology for data collection and reporting, including deadlines, frequency and reporting period.

1.2.7 Eurosystem oversight policy for critical service providers

The European payment and settlement infrastructure has changed significantly over the last decade. The myriad domestic and cross-border systems that make up the European infrastructure are becoming increasingly interconnected and interdependent through a web of direct and indirect relationships. Although these interdependencies take many forms, operational interconnectivity stands at the heart of most FMIs, all of which depend significantly on a diverse range of critical service providers (CSPs). Interdependencies have important implications for the safety and efficiency of the European payment and settlement infrastructure. Some forms of interdependencies have facilitated significant improvements in the safety and efficiency of payment and settlement processes, with some CSPs providing services to multiple FMIs and participants, thereby allowing greater interaction within the ecosystem. However, this has also generated risks, with some CSPs proving to be single points of failure, raising the potential for systemic operational disruption. Furthermore, as the risk landscape evolves rapidly, FMIs are exposed to potential cyber attacks directed at CSPs and the wider supply chain, resulting in contagion across the system.

CSPs fall within the scope of the Eurosystem Oversight Policy Framework and, in line with this, the Governing Council approved, in August 2017, the "Eurosystem policy for the identification and oversight of critical service providers of FMIs". The policy outlines a three-step approach: (1) identify the CSPs of FMIs which fall under the legal mandate of the Eurosystem; (2) determine the eligibility of the CSPs for oversight; and, if deemed necessary, (3) apply direct or indirect oversight. The policy also sets out how indirect oversight could be conducted, as well as outlining the respective roles and responsibilities of the overseers and FMI operators in this process.

The policy requires FMIs to disclose their list of CSPs (every two years), based on a given definition of a CSP and a corresponding taxonomy of essential services. Once such disclosure has taken place, the overseers will conduct an analysis of the list to better understand the ecosystem and the operational interdependencies between FMIs and CSPs, and determine which CSPs should be subject to direct or indirect oversight, or no oversight at all. In the vast majority of cases, it is envisaged that CSPs would be subject to indirect oversight. Indirect oversight will entail a two-step approach by the overseer: (1) obtaining and reviewing a self-assessment of the CSP against Annex F of the PFMI; and (2) as part of the business-as-usual oversight of the FMI, evaluating how the FMI manages its service provision/outsourcing relationships and mitigates any risks arising from such relationships.

However, given the importance of CSPs to a particular FMI/multiple FMIs and consequently to the stability of the financial system, there may be an argument for the Eurosystem or an individual euro area central bank, depending on the specific case, to go beyond indirect oversight and explore the feasibility of directly overseeing a CSP. Direct oversight may take multiple forms, and if there is a credible reason for direct oversight, the overseer and/or Eurosystem would carefully consider the different options for such oversight, the legal feasibility, the required resources and the possible methodologies. The decision to undertake direct oversight will lie with the competent authority where the CSP is located, in accordance with its legal mandate and taking into consideration the Eurosystem view.

1.3 Oversight standards

Oversight standards provide the benchmark for the Eurosystem to monitor and assess the safety and efficiency of relevant FMIs and payment instruments on an ongoing basis and to induce change where gaps are identified. An overview of the relevant standards is provided in the following section according to individual FMIs and payment instruments.

1.3.1 Payment systems

For payment systems, the PFMI have been implemented at Eurosystem level through the SIPS Regulation and the "Revised oversight framework for retail payment systems", published in February 2016. The latter includes the "Oversight expectations for links between retail payment systems", which were already established in 2012.[29]

The primary distinction in the oversight of payment systems by the Eurosystem remains the systemic importance of the system, as defined in Article 1(3) of the SIPS

[29] Oversight expectations for links between retail payment systems, 29 November 2012.

Regulation. This distinction is based on objective, quantitative criteria and determines both the applicable oversight requirements (principle of proportionality) and the way in which they are enforced.

All SIPS in the euro area, including LVPS and RPS operated by both central banks and private operators, are subject to the SIPS Regulation.

For non-SIPS, the PFMI, or a subset thereof, apply. More specifically, non-systemically important LVPS,[30] which normally process a considerable number of high-value payments related to financial market transactions, are subject to all PFMI that address payment systems. Non-systemically important RPS are subject to a selection of PFMI and related key considerations in order to ensure proportionality between the lower risks inherent in such systems and the level of requirements. Finally, all systemically and non-systemically important RPS are subject to the Oversight expectations for links between retail payment systems. The Eurosystem has developed an assessment methodology for payment systems, which is aimed at ensuring a consistent and harmonised application of the SIPS Regulation and the PFMI in the conduct of oversight assessments by the Eurosystem. The methodology takes the CPMI-IOSCO assessment methodology as a basis and complements it with questions from the previously used “Terms of Reference for the oversight assessment of euro systemically and prominently important payment systems against the Core Principles”, thereby establishing one single framework for SIPS and non-SIPS. This methodology also covers the Oversight expectations for links between retail payment systems.

1.3.2 Securities clearing and settlement

The PFMI relevant for SSSs/CSDs are largely implemented via the CSDR and those relevant for clearing systems via EMIR. Both regulations are supplemented by delegated and regulatory technical standards and guidelines developed by ESMA in close cooperation with the ESCB.

To facilitate cooperation among authorities, CCP colleges have been established by competent authorities under EMIR. The colleges perform a number of tasks, including the initial authorisation of CCPs and the authorisation of service extensions or any material change affecting the risk management of the infrastructure, such as a change in margining model. The college membership criteria are detailed in Article 18(2) of EMIR.

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30 The qualification of a non-systemically important payment system as an LVPS or RPS is performed by the respective overseeing central bank, which informs the ECB and the other Eurosystem central banks of its decision and any subsequent change thereof.

1.3.3 Payment instruments

Cards, credit transfers, direct debits

The Eurosystem oversight frameworks for payment instruments are aimed at ensuring the soundness and efficiency of means of payment in order to maintain public confidence in these payment instruments and, ultimately, in the currency, thereby promoting an efficient economy. The first such oversight framework, published by the Eurosystem in January 2008, covered standards for card payment schemes. It was completed in October 2010 with the publication of the oversight frameworks for standards on credit transfers and direct debits, which were developed on the basis of the "Harmonised oversight approach and oversight standards for payment instruments" of February 2009.

Triggered by the changes in retail payments linked to the implementation of the Single Euro Payments Area (SEPA) and the development of new types of payment services, the Eurosystem revised the existing assessment guides accompanying the previously mentioned frameworks in 2014 and 2015[31] taking into account the ECB recommendations on the security of internet payments,[32] as developed by SecuRe Pay. The updated guides, used by overseers and overseen entities in the assessment process, expand on some aspects related to security (e.g. a general requirement for card schemes to support strong customer authentication solutions for online payment transactions – in line with the security objectives set in the ECB Recommendations for the security of internet payments) and customer information issues (e.g. on complaints reporting, security awareness, fraud and charge-backs).

1.3.4 Other infrastructures and service providers

The Eurosystem oversight framework also includes T2S as a Eurosystem infrastructure providing a single, borderless core securities settlement process by offering settlement services to euro area and non-euro area CSDs and central banks. The Eurosystem oversees T2S on the basis of the PFMI as a central platform offering settlement services in central bank money.

The operational reliability of FMIs may be dependent on the continuous and adequate functioning of CSPs, such as information technology and messaging providers. This is true of SWIFT, for example, which provides messaging services and interface software to the financial industry worldwide. The Eurosystem therefore has an interest in the smooth functioning of these providers, in particular those serving critical infrastructures.

[31] Payment instructions.

[32] Recommendations for the security of internet payments.

1.4 Cooperative oversight arrangements

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.

A framework for such cooperation at both international and domestic level is provided by the principles for cooperative oversight, as reiterated by the Eurosystem Oversight Policy Framework and outlined in Responsibility E, “Cooperation with other authorities”, of the CPMI-IOSCO PFMI. In particular, it is recognised that each regulator needs to fulfil its own regulatory responsibilities and that cooperation takes place without prejudice to these responsibilities. EMIR and the CSDR have been important steps forward as regards enhanced frameworks for cooperation between authorities.

Based on the principles for cooperative oversight, the central banks of the Eurosystem have participated in cooperative arrangements in a number of cases. In addition to arrangements that NCBs have in place for cooperation with other national authorities, the Eurosystem has also adopted memoranda of understanding with prudential supervisors and regulators that lay down procedures and principles for regulatory cooperation.

A brief description of cooperative oversight arrangements and activities relating to CLS, Euroclear, TARGET2-Securities and SWIFT is provided in Section 2.

2 The Eurosystem’s oversight activities

2.1 Monitoring and assessment

2.1.1 Systemically important payment systems

The SIPS Regulation entered into force in August 2014 and, after being notified, SIPS operators had one year to comply with the requirements it laid down. The SIPS Regulation applies to and is binding on all payment systems which meet the criteria laid out in Article 1(3) of the Regulation, i.e. both LVPS and RPS of systemic importance, operated both by central banks and private operators.

In terms of the assessment process, the competent authorities (ECB for TARGET2, EURO1 and STEP2-T and the Banque de France for CORE(FR)) take the lead, while all Eurosystem central banks are involved in the oversight activities of EURO1 and STEP2-T on a “no compulsion, no prohibition basis”. In the case of TARGET2, the connected NCBs of Member States that have not yet adopted the euro also participate in its oversight. For CORE(FR), the Banque de France carries out all oversight activities with the involvement of all Eurosystem central banks.

In 2016, on the basis of their mandates, the competent authorities performed a comprehensive assessment of the SIPS to verify the compliance of the systems with the SIPS Regulation. The assessments were conducted using methodology developed by the Eurosystem and with reference to the status of compliance of the four SIPS as of 31 January 2016. The respective competent authorities reviewed the action plans drawn up by the operators to remedy identified infringements and to address the recommendations for enhancements.

TARGET2

TARGET2 is the most important payment system in the euro area, processing not only the transactions necessary for implementation of Eurosystem monetary policy, but also the highest value transactions by far. For 2015 and 2016, the daily average value of transactions settled in TARGET2 was about €1.83 trillion and €1.73 trillion respectively. In a single business day, TARGET2 processes the equivalent of about 20% of euro area annual GDP.

As part of its regular oversight activities, the ECB, as lead overseer, assesses changes that are planned to be introduced in the system and new TARGET2 releases. During the reporting period, the ECB assessed several new TARGET2 releases (8.0 to 10.0) that have been implemented without any concerns arising. Release 9.1 was especially important from an oversight perspective because it introduced functionalities for monitoring liquidity in crisis situations and for consolidated views for banking groups. One functionality in particular was an express response to a recommendation concerning Principle 7 (liquidity risk) issued by the lead overseer in the context of the oversight assessment of TARGET2 against the CPMI-IOSCO principles conducted in 2013.

Since its inception, one of the most significant changes observed in TARGET2 is the connection of TARGET2 with T2S (activated before the launch of T2S in June 2015). In the context of the oversight assessment of the connection of TARGET2 with T2S, the lead overseer issued some recommendations to the TARGET2 operator, such as the need to include the connection with T2S in the comprehensive risk management framework of TARGET2.

In September 2016 the Governing Council approved the publication of a paper jointly prepared by overseers and operators on stress testing of liquidity risk in TARGET2.[33] The stress testing focused on two main scenarios: (i) a system-wide shock in which the collateral used by TARGET2 participants suffers a drop in its value; and (ii) a shock in selected countries, where the value of the collateral issued in a certain country experiences a drop in its mark-to-market value. Overall, the paper concluded that TARGET2 stress testing demonstrates the resilience of the system and that liquidity levels were appropriate and supported by the efficient liquidity management features of TARGET2.

EURO1

During the reporting period the ECB, as lead overseer of the euro payment system of EBA CLEARING (EURO1), monitored, as part of its regular oversight activities, the system's operation and changes. Over the period, the system has undergone changes in its risk management, including the aggregation of banking groups by accepting only one member of a group as the main participant that may incur credit risk against the system. Other group participants can either opt for a sub-participation or a pre-fund status. Another recent change relates to credit risks faced by participants. The SIPS Regulation requires the credit risk of "the two participants which, with their affiliates, have the largest aggregate exposure in the system" to be covered. To implement this requirement in EURO1, EBA CLEARING maintained the level of the current liquidity pool and lowered the maximum debit cap so that the liquidity pool could cover the two largest positions at any time. The Eurosystem assessment found that these changes do not adversely affect the compliance of EURO1 with the SIPS Regulation.

STEP2-T

During the reporting period the ECB, as lead overseer of the STEP2-T systemically important retail payment system operated by EBA CLEARING, monitored the relevant operation and changes. The system underwent technical and functional

[33] Stress-Testing of liquidity risk in TARGET2, *Occasional Paper Series*, No 183, ECB, February 2017.

changes in 2016. In particular, since 21 November 2016 the sending cut-off time for the first daytime settlement cycle of the SEPA Credit Transfer (SCT) service has been pushed back in order to meet a request stemming from some user communities. The Eurosystem assessment found that this change does not adversely affect the compliance of STEP2-T with the SIPS Regulation.

CORE(FR)

CORE(FR) (COmpensation REtail France) was launched in January 2008 and is operated by the private company STET SA, which merged on 1 January 2016 with SER2S, a leading company in card processing. CORE(FR) was initially designed to process all types of interbank retail payment transactions exchanged among the French banking community. However, since November 2016 SEPA direct debits have migrated to a new system called SEPA.EU, also operated by STET SA.

The Banque de France also classified the migration of SEPA direct debits from CORE(FR) to the new system SEPA.EU as a major change and conducted a pre-assessment before its implementation.

2.1.2 Non-systemically important payment systems

The Eurosystem differentiates between SIPS and non-SIPS. This distinction is based on quantitative criteria and determines both the applicable oversight requirements and how they are enforced. Non- SIPS consist of non-systemically important LVPS, prominently important RPS (PIRPS) and other RPS (ORPS). The ECB maintains on its website a list of non-SIPS and their classification.

LVPS, which normally process a considerable number of high-value payments related to financial market transactions, are subject to all PFMI which address payment systems.

PIRPS and ORPS must comply with a subset of the PFMI, as defined in the Revised oversight framework for retail payment systems. The current classification of RPS is based on the 2015 classification data.

Table 2

Non-systemically important payment systems by country (2015 data)

NCB	Prominently important retail payment systems (PIRPS)	Other retail payment systems (ORPS)	Non-systemically important large-value payment systems
Austria	Clearing Service Austria	Clearing Service International	
Belgium	CEC		
Cyprus	JCC Cards Payment System	Cyprus Clearing House for cheques; JCC SEPA Direct Debits System	
Germany		RPS (EMZ), STEP2-CC	
Estonia	Local clearing system for card payments		
Spain	Sistema Nacional de Compensacion Electronica (SNCE)		
Finland			POPS
Greece	DIAS	ACO	
Italy		ICBPI-BICOMP; ICCREA-BICOMP; SIA-BICOMP; CSM Banca d'Italia	
Ireland		IPCC	
Lithuania		SEPA-MMS	
Latvia		Electronic Clearing System EKS; local clearing system for card payments	
Malta		Malta Clearing House	
Netherlands		equensWorldline CSM	
Portugal	SICOI		
Slovenia	SIMP-PS	Multilateralni kliring Activa; Plačilni sistem Moneta; Poravnava bankomatov; Poravnava kartic; Poravnava Multilateralnega kliringa MasterCard	
Slovakia	SIPS (Slovak Interbank Payment Systems)	First Data Slovakia	

In 2016 the Eurosystem began a coordinated assessment of non-systemically important RPS. This assessment is based on the 2012 classification exercise for RPS and covers eight PIRPS (CEC, DIAS, JCC, SIA-BICOMP, SICOI, SIMP-PS, SIPS and SNCE) and 16 ORPS. It is important to note that, as a result of the 2015 classification exercise, SIA-BICOMP was reclassified as an ORPS and Clearing Service Austria as a PIRPS, while some systems have been newly included in the classification (e.g. STEP2-CC, the German clearing system for card payments) and their assessment is either complete or ongoing.

Prior to the launch of SEPA.EU on 21 November 2016, the Banque de France conducted a pre-assessment of the new system, which is operated by STET SA. SEPA.EU was assessed under the set of PFMI applicable to it under its current classification as an ORPS. Since its launch, SEPA.EU has offered a dedicated new SEPA clearing service to the French banking community, starting with SEPA direct debits.

The lead overseer is responsible for the assessment of its respective PIRPS and ORPS. Such assessments are conducted using a common Eurosystem methodology and a peer review process to ensure a high degree of consistency and comparability across these systems. The individual assessments are carried out on the basis of the Revised oversight framework for retail payment systems and the Assessment methodology for payment systems. Each RPS is assessed against a subset of principles and key considerations, as commensurate with its systemic importance. With this harmonised and consistent approach, the Eurosystem ensures a level playing field in the oversight of euro area payment systems. The peer review of each system is conducted by an NCB other than the lead overseer and is aimed at further reinforcing the harmonised Eurosystem oversight approach and enhancing the overall quality of the assessment results. In the case of PIRPS, peer reviews are performed horizontally by principle (i.e. a peer reviewer analyses the same principle of the PFMI across all systems). In the case of ORPS, the peer reviews are performed vertically per system (i.e. a peer reviewer analyses each system, taking into account all the principles relevant for that system).

2.1.3 TARGET2-Securities

TARGET2-Securities (T2S) is a Eurosystem infrastructure, which, since its inception in June 2015, has provided European CSDs with a single, pan-European platform for securities settlement in central bank money.

20 CSDs had migrated to T2S by the end of September 2017:

- The System for Monitoring Transactions in Book-entry Securities (BOGS) (Greece), Depozitarul Central (Romania), Malta Stock Exchange, Monte Titoli (Italy) and SIX SIS (Switzerland) migrated in the first wave in June 2015;
- Interbolsa (Portugal) and NBB-SSS (Belgium) migrated in the second wave in March 2016;
- Euroclear Belgium, Euroclear France, Euroclear Nederland, VP Lux (Luxembourg) and VP Securities (Denmark) migrated in the third wave in September 2016;
- Centrálny depozitár cenných papierov SR (CDCP) (Slovakia), Clearstream Banking (Germany), KDD – Centralna klirinško depotna družba (Slovenia), KELER (Hungary), LuxCSD (Luxembourg) and OeKB CSD (Austria) migrated in the fourth wave in February 2017;
- Nasdaq CSD (formed by the merger of the CSDs of Estonia, Latvia and Lithuania) and Iberclear (Spain) completed the migration phase in September 2017.

The T2S steering level agreed that the migration of the newly established Slovakian CSD, Národný centrálny depozitár cenných papierov (NCDCP), which signed the T2S Framework Agreement in May 2016, will take place on 30 October 2017, after the stabilisation period for the final wave. Danmarks Nationalbank has committed to making settlement against Danish krone available in T2S in the last quarter of 2018.

In March 2017 T2S was settling a daily average volume of 498,655 transactions and a daily average value of €735.31 billion.

The Eurosystem conducts oversight of T2S as part of its mandate in accordance with the Treaty on the Functioning of the European Union and the Statute of the ESCB. Taking into account the systemic relevance of T2S and its importance for the conduct of the Eurosystem's monetary policy, the main objective of T2S oversight is to ensure the safety and efficiency of T2S services on a continuous basis and to foster the compliance of T2S with the relevant regulations and oversight standards (currently, the PFMI).

The Eurosystem, together with the securities regulators, finalised the oversight pre-assessment of the T2S design in 2015 against the ESCB and Committee of European Securities Regulators (CESR) Recommendations for SSSs[34] before its go-live to ensure its safety and efficiency. The pre-assessment concluded that, out of the 15 applicable ESCB-CESR recommendations, 13 were observed and one was likely to be observed and conditional on submission of the final documentation. One recommendation concerning settlement finality remained open because of the ongoing negotiations for a collective agreement between the CSDs on a common definition of the moment of entry of a transfer order into the system (Settlement Finality I). Overall, the authorities concluded that the T2S design did not reveal any material gaps. In a few areas relating to legal risk, timing of finality, operational risk, access, links and risk management considerations, some enhancements were considered and recommendations issued.

Since 2014 the Eurosystem T2S oversight function has reviewed the oversight framework for T2S with a view to better capturing organisational arrangements and overseers' expectations of the T2S operator. After the T2S go-live in mid-2015, the most prominent activities for the T2S oversight function were the monitoring of the further migration waves and the assessment of changes introduced in T2S. The T2S oversight function followed the situation of the migrating markets closely and considered the overall status of the T2S migration activities to be satisfactory. A number of measures implemented by the T2S operator helped fine-tune the system in order to cater for the increased volumes after the migration of the third wave, and for the even higher volumes that the fourth wave brought in February 2017. Furthermore, assessments against the PFMI of the three intermediate releases that have been implemented in the production environment since the T2S go-live have produced positive results: none of the changes included in the releases had a negative impact on the risk status of the system but, conversely, produced a positive effect, in particular from an operational risk perspective.

[34] Even though the CPMI-IOSCO PFMI were adopted in 2012, the authorities decided to complete the pre-assessment of T2S (which began in 2011) against the older ESCB-CESR recommendations for SSSs to ensure timely finalisation of the assessment before T2S went live in June 2015. To address any novelties stemming from the PFMI, a gap analysis was performed in 2013 and additional questions concerning risk management were added for the assessment of the T2S design.

Whereas the Eurosystem's responsibility towards T2S is related to its mandate "to ensure efficient and sound clearing and payment systems", competent authorities for the supervision of CSDs aim to ensure the smooth functioning of CSDs, the safety and efficiency of settlement and the proper functioning of financial markets. In order to facilitate the achievement of the common objectives, a T2S Cooperative Arrangement between overseers and securities regulators was established in line with Responsibility E of the CPMI-IOSCO PFMI and the CSDR. To this end, a Memorandum of Understanding was signed in March 2016 between the following participating authorities: the ECB as lead overseer of T2S, the overseers of SSSs connected to T2S, the NCBs of currencies that are eligible for settlement in T2S, the competent authorities for the supervision of those CSDs which have signed the T2S Framework Agreement, and ESMA in its role of coordinator of competent authorities for the supervision of CSDs. The T2S Cooperative Arrangement aims to promote the effective and consistent application of international oversight standards, thereby improving the effectiveness of the oversight function with respect to T2S, as well as real-time gross settlement systems (RTGSs) and CSDs using T2S services, and the performance of competent authorities for the supervision of CSDs in ensuring adequate functioning of the respective CSDs using T2S services.

2.1.4 Securities settlement systems

The Eurosystem oversees SSSs at national level, as it does CCPs. In some cases, cooperative agreements have been set up between several authorities to make the oversight more effective. Cooperation among authorities is expected to be further enhanced once the process for authorisations of CSDs under the CSDR is launched in the course of 2017.

Over the reporting period, ongoing oversight of SSSs by Eurosystem members has focused in particular on the adaptation of IT infrastructures to T2S. Furthermore, the overseers closely monitored the CSDs' preparations and tests for the smooth migration to T2S. Following the completion of successive migrations, the ongoing oversight by Eurosystem members is focused on the monitoring of the settlement activities in T2S.

Since the previous report, all open recommendations stemming from the assessments against the ESCB-CESR recommendations were either closed satisfactorily or carried into the PFMI and/or CSDR authorisation assessments. Furthermore, over the reporting period, most SSSs in the euro area (Belgium, Estonia, Greece, Spain, France, Italy, Latvia, Lithuania, Luxembourg (Clearstream Banking S.A.), Malta, Slovenia, Slovakia and Finland) were assessed against the PFMI, while, in some cases, assessments against the PFMI have been postponed in anticipation of assessments against the CSDR (this is the case in Germany, Cyprus, Luxembourg (VP LUX and LuxCSD), Austria and Portugal). The assessments against the PFMI were conducted either by the lead overseer and/or in cooperation with the NCA/regulator. Compliance was observed in most cases with recommendations issued in specific instances where areas for improvement were highlighted; their implementation is being closely monitored by the lead overseer/NCA/regulator within a mutually agreed timeframe. Furthermore, the NCBs of the Baltic States (Latvijas Banka in cooperation with Eesti Pank and Lietuvos bankas) carried out the oversight of the merger project of the Baltic States' CSDs into a single CSD, Nasdaq CSD SE. Going forward, all Eurosystem NCBs will be involved in the CSDR authorisation and evaluation process with regard to the overseen SSSs.

Table 3
Overview of SSS assessments – status and results

Country	Securities settlement systems	Status of assessment against the PFMI	Key results of the assessment, findings and recommendations against the PFMI/authorisation process under the CSDR
Belgium	NBB-SSS	Assessment against the PFMI is complete.	In 2016 the Nationale Bank van België/Banque Nationale de Belgique (NBB) disclosed its assessment of NBB-SSS against the CPMI-IOSCO PFMI. Four principles were considered broadly observed; i.e. Principle 3 on "risk management framework", Principle 12 on "exchange-of value settlement systems" for non-euro transactions, Principle 17 on "operational risk" and Principle 19 on "tiered participation arrangements". NBB-SSS is currently implementing the oversight recommendations and making the necessary changes to be CSDR-compliant (no authorisation is needed as NBB-SSS is operated by the NBB).
	Euroclear Bank	Assessment against the PFMI is complete.	For Euroclear Bank, a new assessment against the CPMI-IOSCO PFMI was started at the end of 2016 and is expected to be completed by the end of 2017. As the competent authority under the CSDR, the NBB is monitoring the Euroclear Bank filing process for CSDR authorisation.
Belgium, France, Netherlands	Euroclear Settlement for Euronext-zone Securities (ESES) CSDs – Euroclear Belgium, Euroclear France and Euroclear Nederland	Assessment against the PFMI has been completed by lead overseer in cooperation with securities regulators.	In 2015 relevant authorities of the ESES CSDs (central banks as overseers of settlement system, and market authorities as supervisors of the CSDs) published the results of a joint comprehensive assessment of the ESES CSDs against the CPMI-IOSCO PFMI. All but three principles are considered to be "observed"; Principle 19 on "tiered participation arrangements", Principle 20 on "FMI links" and Principle 23 on "transparency" were considered to be "broadly observed", which led to the joint issuance of recommendations. The ESES CSDs have made progress on the implementation of these recommendations, in particular as regards transparency and FMI links. The remaining issues are planned to be dealt with in the course of the CSDR authorisation process, which will begin in September 2017 at the latest.
Germany	Clearstream Banking AG – System Clearstream Banking AG – Creation	The Clearstream systems have not been subject to an oversight assessment against the PFMI; PFMI requirements will be addressed via the assessment taking place against the CSDR as part of the related authorisation process.	As the relevant authority under the CSDR, the Deutsche Bundesbank will be involved in the CSDR authorisation process. After completion of CSDR authorisation, the Deutsche Bundesbank will ensure, in cooperation with the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht – BaFin) as the competent authority under the CSDR, that any open issues with respect to the PFMI are adequately addressed in due course.
Estonia	Estonian Central Securities Depository	Assessment against the PFMI is complete.	Please refer to the pre-assessment results for Nasdaq CSD SE below.
Estonia, Latvia, Lithuania	Nasdaq CSD SE[35]	In 2017 Eesti Pank, Latvijas Banka and Lietuvos bankas (the NCBs of the Baltic States) conducted a pre-assessment of the Nasdaq CSD SE settlement systems against the CPMI-IOSCO PFMI. The pre-assessment was completed in March 2017.[36]	The results of the pre-assessment indicated that Nasdaq CSD SE observes six principles, broadly observes ten principles and partly observes three principles of the CPMI-IOSCO PFMI. As a result, overseers jointly issued a number of recommendations. Nasdaq CSD SE has so far implemented most of these recommendations and is expected to implement most of the remaining recommendations before the planned going live on 18 September 2017. The overseers are monitoring implementation of the recommendations in cooperation with each other. After completion of Nasdaq CSD SE's authorisation, the NCBs of the Baltic States will ensure cooperation with the Baltic supervisory institutions as competent authorities under the CSDR and, as part of that process, will adequately address any open or new issues regarding the PFMI in due course.
Greece	System for Monitoring Transactions in Book-entry Securities (BOGS)	Assessment against the PFMI is complete.	All applicable principles were observed and no recommendations were issued.

35 Nasdaq CSD SE was set up on 15 September 2017 as a result of the cross-border merger of the existing CSDs of the three Baltic States – the Estonian Central Securities Depository, the Latvian Central Depository and the Central Securities Depository of Lithuania (CSDL). Since 18 September 2017, Nasdaq CSD SE, as the authorised entity under the CSDR and connected to T2S, provides core CSD services and certain non-banking ancillary services in Latvia through its Latvian head office and cross-border CSD services in Estonia and Lithuania via branches established in Estonia and Lithuania.

36 The assessment reports were adopted by Eesti Pank on 20 March 2017, by Latvijas Banka on 10 March 2017 and by Lietuvos bankas on 29 March 2017.

Country	Securities settlement systems	Status of assessment against the PFMI	Key results of the assessment, findings and recommendations against the PFMI/authorisation process under the CSDR
Spain	Iberclear ARCO	Assessment against the PFMI was completed in April 2017.	In April 2017 the Spanish National Securities Market Commission (Comisión Nacional del Mercado de Valores – CNMV) and the Banco de España carried out a joint assessment of Iberclear against the CPMI-IOSCO PFMI. Recommendations were issued for a few principles, which should be implemented by the time Iberclear is authorised under the CSDR.
Italy	Monte Titoli	Assessment against the PFMI was completed in cooperation with the securities regulator.	The evaluation exercise highlighted some areas for improvement to be taken into consideration by Monte Titoli, also in view of the authorisation procedure under the CSDR.
Cyprus	Central Depository Central Registry (CDCR)	The CDCR has not been subject to an oversight assessment against the PFMI; PFMI requirements will be addressed via the assessment taking place against the CSDR as part of the related authorisation process.	The Central Bank of Cyprus, in its capacity as the relevant authority under the CSDR, shall cooperate with the Cyprus Securities and Exchange Commission, which is the designated competent authority.
Latvia	Latvian Central Depository – DENOS	Assessment against the PFMI is complete.	Please refer to the pre-assessment results for Nasdaq CSD SE above.
Lithuania	Central Securities Depository of Lithuania (CSDL)	Assessment against the PFMI is complete.	Please refer to the pre-assessment results for Nasdaq CSD SE above.
Luxembourg	Clearstream Banking S.A., Luxembourg (CBL)	Assessment against the PFMI was completed for CBL in cooperation with the Commission de Surveillance du Secteur Financier (CSSF).	For CBL, all principles were observed except four which were broadly observed (Principle 4 on “Credit risk”, Principle 5 on “Collateral”, Principle 19 on “Tiered participation agreements”, and Principle 20 on “FMI links”). Banque centrale du Luxembourg, jointly with the CSSF, issued recommendations, the implementation of which is being closely monitored by both authorities. In addition to the recommendations, CBL was also notified of specific areas for improvement.
	LuxCSD VP LUX	Assessment against the PFMI is in progress for VP LUX and LuxCSD.	As the relevant authority under the CSDR, the Banque centrale du Luxembourg will be involved in the CSDR authorisation process. The Banque centrale du Luxembourg will finalise the PFMI assessments of VP LUX and LuxCSD, taking into account the adaptations made by the CSDs for the CSDR authorisation process.
Malta	MaltaClear	Assessment against the PFMI is complete.	Although MaltaClear has implemented the majority of recommendations issued by the Central Bank of Malta, there are two recommendations relating to Principles 7 and 13 that were still to be addressed by MaltaClear at the end of June 2017. As the relevant authority, the Central Bank of Malta will be involved in the CSDR authorisation process once the Malta Stock Exchange submits its application.
Austria	Central Securities Depository Austria (CSD.A)	CSD.A has not been subject to a separate oversight assessment against the PFMI; PFMI requirements will be addressed via the assessment taking place against the CSDR as part of the related authorisation process.	As the relevant authority under the CSDR, the Oesterreichische Nationalbank will produce an expert opinion for the NCA (the Austrian Financial Market Authority – FMA) on CSD.A against the CSDR. The Oesterreichische Nationalbank is in intensive contact with CSD.A and conducted several management meetings, together with the NCA and CSD.A, to prepare the licensing procedure. After the procedure is complete, the Oesterreichische Nationalbank plans to conduct a gap analysis between the PFMI and the CSDR.
Portugal	Interbolsa	Interbolsa has not been subject to an oversight assessment against the PFMI; PFMI requirements will be addressed via the assessment taking place against the CSDR as part of the related authorisation process.	As the relevant authority, the Banco de Portugal will be involved once the NCA has determined the start of the application for the authorisation of Interbolsa. The Banco de Portugal can request information in relation to Interbolsa under a Memorandum of Understanding with the NCA.
Slovenia	Central Securities Clearing Corporation (Centralna klirinško depotna družba, d.d. – KDD)	Assessment against the PFMI is complete.	Twenty-nine recommendations were issued in the following areas: governance (2), comprehensive management of risks (5), credit and liquidity risk management (7), CSDs (1), participant-default management (1), general business and operational risk management (7), access (5) and transparency (1). Six recommendations remain open and will be implemented with the CSDR authorisation. As the competent and relevant authority, Banka Slovenije will be involved in the authorisation process for KDD under the CSDR.
Slovakia	The National Central Securities Depository (Národný centrálny depozitár cenných papierov, a. s. – NCDCP)	Assessment against the PFMI is complete.	For NCDCP, all oversight recommendations were implemented by April 2017.
	CDCP (Centrálny depozitár cenných papierov SR, a.s. – CDCP)	Assessment against the PFMI is complete.	For CDCP, all oversight recommendations were implemented by December 2016.
Finland	Euroclear Finland	Assessment against the PFMI is complete.	The assessment was completed in 2014. All principles were observed except two that were assessed as broadly observed.

An overview on the values and volumes of instructions processed by euro area SSSs/CSDs is included in Annex 3.

2.1.5 Central counterparties

Pursuant to Article 18 of EMIR, CCP colleges have been established for all CCPs operating in the EU. During the authorisation phase, the CCP colleges focused on assessing compliance of CCPs with EMIR and with the complementary RTS. In doing so, the NCA for each CCP conducted a risk assessment covering all regulatory requirements and the extent to which the CCP complies with them. Based on this assessment, Eurosystem college members (in their roles as, inter alia, overseer and CBI) have been conducting their own assessments, focusing on areas such as the CCP clearing and settlement process, liquidity risk management and interoperability arrangements with other CCPs. In general, the same process was followed for authorisation of service extensions and significant model changes proposed by the CCPs. In addition to assessment work related to voting, in some colleges the NCAs gave college members the option to participate in certain tasks in the supervisory plan (e.g. thematic reviews). In their work in the college and when forming opinions regarding the authorisation of the CCP, service extensions or significant model changes, Eurosystem college members provided recommendations and induced changes in key areas relevant from the perspective of the CBI.

EMIR colleges

Pursuant to Article 18(2)(g) and (h) of EMIR, the relevant members of the Eurosystem participate in EMIR colleges in their oversight capacity and represent the Eurosystem as a CBI for CCPs where the euro is one of the most relevant currencies for the financial instruments cleared, most notably – besides euro area CCPs – offshore CCPs that clear a significant proportion of financial instruments in euro. Regarding the CBI function, the Governing Council decided in December 2012 that, as a general rule, the Eurosystem should be represented by the relevant euro area NCBs when a CCP is established within the euro area, and by the ECB for CCPs established outside the euro area.

Overview of oversight activities/developments in relation to CCPs

Eurosystem NCBs, often along with the relevant NCA with whom they cooperate for the oversight and supervisory functions of the relevant clearing houses and with whom they participate in the respective CCP's EMIR college, conducted their yearly risk assessments and, in some jurisdictions, assessed a number of changes introduced by the relevant CCPs. An overview of the main oversight activities and key developments affecting individual CCPs during the reporting period is provided below.

Table 4

Overview of the main oversight activities and key developments related to individual CCPs

Country	Responsible authorities	CCPs	Assessment
Within the euro area			
Austria	Oesterreichische Nationalbank Financial Market Authority (FMA) European Central Bank	CCP.A	The Oesterreichische Nationalbank, in conjunction with the FMA, conducted its regular assessment of CCP.A in 2016 with a special focus on collateral policy, stress testing, model validation and CCP.A's disclosure framework. The CCP was deemed compliant with EMIR, although some recommendations were issued by the EMIR college. The oversight focus for 2017 will be on CCP.A's migration to T2S, which took place in February 2017; central bank money settlement; business continuity; cyber risk management and stress testing. The ECB participates in CCP.A's EMIR college as the Eurosystem CBI representative.
France	Banque de France Autorité de Contrôle Prudentiel et de Résolution (ACPR) Autorité des Marchés Financier (AMF)	LCH.SA	The Banque de France, along with the ACPR, the AMF and the remaining members of the CCP's EMIR college, has assessed and authorised a number of changes and enhancements submitted by LCH.SA over the last two years. These encompassed the following: (i) the implementation of new stress scenario methodologies for the computation of cash and derivatives, as well as fixed income default funds (authorised in July 2015); (ii) a decrease in the liquidation period for listed derivatives from three days to two (authorised in September 2016); (iii) the introduction of USD-denominated CDX investment grade indices and single-name credit default swaps (authorised in April 2016 and implemented the following month); and (iv) changes in the CDSClear margining model (authorised in 2016 and implemented at the end of that year).
Germany	Deutsche Bundesbank Federal Financial Supervisory Authority (*Bundesanstalt für Finanzdienstleistungsaufsicht* –BaFin)	Eurex Clearing AG (ECAG) European Commodity Clearing AG (ECC)	The Deutsche Bundesbank monitored the ongoing compliance of Eurex Clearing AG (ECAG) and European Commodity Clearing AG (ECC) with the PFMI. With regard to German CCPs, the Deutsche Bundesbank works in close cooperation with BaFin. In 2015 the IMF carried out its Financial Sector Assessment Program for Germany, with Eurex Clearing being subject to a detailed assessment against the PFMI. The published results indicated that the CCP observed 20 of the principles and broadly observed one of the principles. New services and model changes were also assessed for ECAG by the NCA and the CCP's college and included (i) a reduction of the holding period for equity and equity index derivatives, (ii) the introduction of a new direct access offering to buy-side clients, and (iii) the migration of all listed derivatives products to the portfolio-based risk model PRISMA.
Greece	Bank of Greece Hellenic Capital Market Commission (HCMC)	ATHEXClear	The Bank of Greece represents the Eurosystem as CBI in ATHEXClear's EMIR college and regularly monitors ATHEXClear's activities. In June 2015 the CCP's NCA, HCMC, in conjunction with ATHEXClear's EMIR college, adopted a crisis communication protocol. Instability in the Greek financial market towards the end of June 2015 prompted the implementation of an extended bank holiday period. The risk management measures that were adopted by the CCP before its re-opening proved to be adequate. During 2016 there were no significant changes in the organisation, risk governance or risk models and metrics of ATHEXClear.
Italy	Banca d'Italia The Italian Companies and Stock Exchange Commission (*Commissione nazionale per le società e la borsa* – Consob)	CC&G	Banca d'Italia assessed CC&G's compliance with the PFMI, in particular in relation to aspects not reflected in EMIR, and monitored the effects of the CCP's migration to T2S, with particular attention to liquidity management on the new settlement platform. Banca d'Italia, along with the CCP's NCA, Consob, monitored and assessed CC&G's recovery planning and related amendments to the CCP's operating rules.
Netherlands	De Nederlandsche Bank	EuroCCP ICE Clear Netherlands B.V. (ICNL)	EuroCCP entered into clearing for London Stock Exchange trades in 2015, and in 2016 Euronext acquired a 20% stake in EuroCCP. The acquisition was announced in May 2016 and approved by the end of the year. As a result, in 2017 the CCP's supervisory board will be expanded and thus subject to regulatory approval. EuroCCP was additionally included within the scope of the 2016 IMF Financial Sector Assessment Program in the Netherlands. In the case of Holland Clearing House N.V. (HCH), Intercontinental Exchange, Inc. (ICE) acquired a controlling stake in HCH in 2015 and it was subsequently rebranded as ICE Clear Netherlands B.V. (ICNL). The two-tier board structure was transformed into a one-tier board structure. The transformation was completed in 2016 when ICNL migrated its margin model and its clearing IT systems to align them with those of ICE.
Portugal	Banco de Portugal Portuguese Securities and Exchange Commission (*Comissão dos Mercados de Valores Mobiliários* – CMVM)	OMIClear	OMIClear had two additional products assessed and added to its clearing services portfolio (SPEL Solar Mini Swap and PTEL Base Load Mini Swap) during 2015, and in 2016, in accordance with legal requirements, withdrew bank guarantees from the list of eligible collateral. OMIClear's activities are monitored through the analysis of quarterly college reports and participation in annual college meetings with the CBI, the Banco de Portugal, and the relevant NCA, CMVM.
Spain	Banco de España Spanish National Securities Market Commission (*Comisión Nacional del Mercado de Valores* – CNMV)	BME Clearing	In the second semester of 2015 BME Clearing was granted approval by its EMIR college to offer the clearing of interest rate swaps and equities. Additionally, in 2016 BME Clearing started to clear (i) futures on several new sectoral indices in the financial derivatives segment (energy, banking and construction sectors), and (ii) wind profile energy contracts.

Country	Responsible authorities	CCPs	Assessment
Outside the euro area			
United Kingdom	European Central Bank Banque de France Bank of England	CME Clearing Europe ICE Clear Europe LCH.Ltd	Outside of the euro area, in the United Kingdom, the ECB represents the Eurosystem as CBI for CME Clearing Europe, ICE Clear Europe and LCH.Ltd (along with the Banque de France as deputy in the case of the latter). ICE Clear Europe was authorised by the EMIR college in September 2016. The ECB (like other EMIR college members) was also involved in the review and approval process for an extension of services and significant model changes for all the aforementioned UK CCPs. These significant changes covered various areas, including the CCPs' risk management frameworks and practices such as the introduction of the new portfolio margining service for interest rate derivatives by LCH.Ltd in May 2016. As the NCA for ICE Clear Europe and LCH.Ltd, the Bank of England set up a global college arrangement in addition to the EMIR colleges. The ECB participates in both cooperative arrangements, under which college members may contribute to the supervisory work conducted and coordinated by the Bank of England. Hence, the ECB has volunteered to participate in thematic reviews, and will continue to engage, especially for those topics specifically relevant to the Eurosystem CBI function. In line with international guidance, Crisis Management Groups (CMGs) for ICE Clear Europe and LCH.Ltd were established for resolution planning purposes in which the ECB is also a member.
Sweden	European Central Bank Finansinspektionen (FI) Sveriges Riksbank	Nasdaq OMX Clearing (NOMXC)	In Sweden, the ECB participates as Eurosystem CBI representative in the EMIR college for NOMXC, reviewing and evaluating the CCP activities as well as focusing on NOMXC's enhanced liquidity risk management framework, recovery plans and cyber security.

2.1.6 CLS

CLS, formerly the Continuous Linked Settlement system, provides a multi-currency service for the payment-versus-payment settlement of payment instructions relating to foreign exchange (FX) transactions, thereby eliminating the risk that payment in one currency occurs but the other currency is not received. The Federal Reserve System has primary responsibility for the oversight of CLS under a cooperative oversight framework (the "Protocol"[37]) between the Group of Ten (G10) central banks and other central banks of issue of CLS-eligible currencies. Under the Protocol, the primary forum for the cooperating central banks is the CLS Oversight Committee (OC), chaired by the Federal Reserve as lead overseer. In this context, the relevant central banks can carry out their individual oversight responsibilities to fulfil their objective of safe and efficient payment and settlement systems and financial system stability. The ECB, which has primary oversight responsibility for settlement of the euro in CLS, represents the Eurosystem on the OC alongside other G10 euro area NCBs.[38]

CLS settles payment instructions relating to FX transactions in 18 major currencies. In 2016, CLS settled more than 800,000 transactions worth almost USD 5 trillion on average per day. Since 2014 CLS has advanced a number of strategic initiatives, which have been closely followed by the overseers. The Hungarian forint was added as a CLS-eligible currency (November 2015). CLS launched a compression service in cooperation with TriOptima (October 2015) and a settlement service for cross currency swaps in cooperation with Markit (November 2015), and introduced two

[37] The Protocol for the Cooperative Oversight Arrangement of CLS is available on the Federal Reserve Board's website.

[38] Banque de France, Banca d'Italia, Nationale Bank van België/Banque Nationale de Belgique, Deutsche Bundesbank, De Nederlandsche Bank.

new membership categories to support participation expansion efforts (January 2017). Moreover, CLS completed the migration to a new member gateway based on SWIFT ISO 20022 messaging in November 2016. CLS is currently developing a settlement service for CCPs aimed at facilitating the settlement of cleared FX products. CLS is also developing a payment netting service for FX trades that are settled outside the CLS settlement service, which will allow trade submissions via SWIFT or distributed ledger technology. Subject to necessary approvals, this service will support more than 140 currencies at launch but not involve settlement. In addition to these business initiatives, CLS has, in line with global regulatory expectations, undertaken steps to strengthen its resilience and to support financial stability. For example, CLS introduced a transition settlement membership to allow continued access for banks in resolution. CLS developed a recovery and orderly wind-down plan, worked to strengthen its cyber resilience and implemented an enhanced liquidity risk management framework which takes into account interdependencies in the event of a failure by a nostro agent. Overseers have cooperated and worked with CLS to ensure sound arrangements in the above-mentioned areas. The OC's oversight activities also include reviewing the ongoing operations of CLS. Moreover, the overseers are following up on CLS's work to mitigate same-day settlement risk (CLS has been analysing potential options to offer a solution).

2.1.7 Payment instruments

Card payment schemes assessment

A comprehensive assessment of 23 international and major domestic card payment schemes operating in the euro area[39] against the Oversight framework for card payment schemes[40] was finalised in 2014 and summarised in the previous Eurosystem oversight report. To take account of the assessment guide for card payment schemes published in 2015,[41] the Eurosystem is currently assessing 16 national and international schemes against the updated guides. This exercise is planned to be completed in second quarter of 2018.

SEPA direct debit (SDD) scheme assessment

The "Oversight framework for direct debit schemes"[42] (October 2010) describes the oversight standards developed by the Eurosystem for these particular payment schemes. The Eurosystem assessed the European Payments Council's (EPC's)

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39 Some schemes were waived because they had fewer than 1 million cards in issue or annual transactions of less than €1 billion within the euro area.

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

41 See Section 1.3.3.

42 Oversight framework for direct debit schemes, October 2010.

SEPA Direct Debit Core Scheme (SDD Core) against these standards[43] from December 2014 to January 2017. The EPC, as the scheme owner, provided an action plan in March 2017 to address the oversight recommendations and its implementation is under way.

SEPA credit transfer and instant credit transfer schemes assessment

With regard to both the SEPA credit transfer (SCT) scheme and the new instant credit transfer scheme (SCT Inst) developed by the EPC, the Eurosystem applies the "Oversight framework for credit transfer schemes" (October 2010).[44] The assessment of the SCT Inst scheme was launched at the end of May 2017 and will run until the second quarter of 2018. The SCT scheme will then be subject to an oversight assessment.

Fraud data collection for direct debits (DDs) and credit transfers (CTs)

Overseers use the collection and analysis of information on payment fraud as a basic tool for exercising their primary role of ensuring the safety and efficiency of payment instruments and overseeing payment schemes. Collecting such data supports overseers in implementing possible measures to mitigate fraud. The lack of fraud data on direct debit and credit transfers at European level, as well as harmonised rules for these payment instruments following the migration to SEPA, prompted the Eurosystem overseers to take preliminary steps to collect fraud data on direct debit and credit transfer payment instruments. This was done via surveys asking for payment fraud data from a set of volunteer PSPs.

Two such data collection exercises were launched. The first, in 2015, covered fraud data for 2014 and the first quarter of 2015, albeit of a qualitative nature (i.e. indicating fraud trends). A second collection, in 2016, covered 2015 and introduced the reporting of quantitative fraud data, in addition to qualitative data.

Given the voluntary nature of the exercise, the outcome was not representative enough of the whole EU. However, some high-level indications of levels and types of fraud can be observed, in particular that CT and DD payment fraud rates remain at a minimum level. Furthermore, the procedures for collecting data, as well as the related cooperation between authorities and payment service providers, will be enhanced in the near future with the implementation of harmonised reporting requirements at EU level under PSD2 (see Section 1.2.6).

Quantitative data were collected for volumes and values of total transactions, fraudulent transactions and mitigated fraud transactions. The latter refer to fraud

[43] Guide for the assessment of direct debit schemes against the oversight standards, November 2014.

[44] Oversight framework for credit transfer schemes, October 2010.

attempts which, due to the PSP's risk-mitigating measures (e.g. transaction risk analysis, blocking of fraudulent transactions before and during their execution in order to reduce the financial loss), did not result in a financial loss.

With regard to types of fraud, "issuance of a payment order by a fraudster" was the main type reported[45] for both types of payment instruments. "Manipulation of the payer to issue a payment order" was the category with the highest growth since 2014, while "modification of a payment order by a fraudster" scored the highest for CTs. Phishing, malware and social engineering were identified as the three most-mentioned technical means of fraud for CTs. Other types mentioned were Chief Executive Officer (CEO) fraud, email hacking and man-in-the-browser.

Since the data were deemed not representative enough and Article 96(6) of PSD2 requires PSPs to provide the ECB with statistical data on fraud relating to different payment instruments, no further data collections on CT and DD fraud will be launched until this has happened. In the meantime, the ECB has engaged with the EBA to define harmonised reporting of payment fraud under this article, which will be outlined in future EBA own-initiative guidelines for PSPs. The ECB is also monitoring the SDD Core scheme by means of R-transactions[46] data reported directly by the scheme governance authority.

Fraud data collection for card schemes

The Eurosystem constantly monitors the activity of card payment schemes operating in the EU. Besides conducting oversight assessments, the Eurosystem has been collecting, since 2007, the transactions and fraud data of 25 card schemes providing services in the EU. The Eurosystem has been monitoring fraud on a quarterly basis since 2015 and periodically publishes card fraud reports on its website.[47] The next card fraud report is being prepared and will cover statistical data on card fraud from 2014 to 2016; it is expected to be published in the last quarter of 2017.

2.1.8 Critical service providers

SWIFT

The Society for Worldwide Interbank Financial Telecommunication (SWIFT) is a CSP used to exchange standardised financial messages worldwide. SWIFT is incorporated in Belgium. The central banks of the G10, including the ECB, have

45 The following categories were specified as potential origin of fraud in the survey: manipulation of the payer to issue a payment order, issuance of a payment order by the fraudster and modification of a payment order by the fraudster.

46 Exceptional way of handling the normal execution of a direct debit collection; R-transactions include refunds, returns, rejects, refusals and reversals. Some of the R-transactions are executed on the grounds of unauthorised transactions, which could be an indication of fraud.

47 See Fourth report on card fraud, ECB, July 2015.

established a cooperative oversight arrangement with Nationale Bank van België/Banque Nationale de Belgique (NBB), which is the lead overseer of SWIFT.

The SWIFT Cooperative Oversight Group (OG) 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 for responding 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 and reports its findings and recommendations to the OG. In 2012 a SWIFT Oversight Forum was set up in order to expand information-sharing and dialogue in relation to SWIFT oversight to a larger group of central banks, including those of Australia, China, Hong Kong, India, South Korea, Russia, Saudi Arabia, Singapore, South Africa and Turkey.

The oversight of SWIFT is carried out on the basis of a set of oversight principles that have been specifically developed for this purpose by the overseers. They describe in detail overseers' expectations of SWIFT in terms of operational risk management. These five high level expectations (HLEs) focus on security (confidentiality, integrity, availability) and system resilience. The HLEs vis-à-vis SWIFT have evolved into oversight requirements for all CSPs to FMIs and were included as Annex F of the PFMI.

In recent years, SWIFT's overseers have reviewed and provided recommendations on SWIFT's major projects. Aspects reviewed include risk management and project management, including the monitoring of project milestones, test strategies and transparency of communication in relation to vendors and customers. A major focus of the oversight activities has been on SWIFT's cyber risk defence. Recent cyber events (e.g. the incident at the Central Bank of Bangladesh) have shown the importance of end-to-end security in the transaction chain. Consequently, SWIFT has specifically launched a comprehensive programme aimed at reinforcing cyber security within its user community – endpoint security. SWIFT will roll out this Customer Security Programme in the course of 2017-18. The overseers of SWIFT have been following up on the adequacy and implementation of the Customer Security Programme in close collaboration with SWIFT.

SIA/COLT

SIA is a provider of technology infrastructures and services for the banking and financial sectors and is registered in Italy. As the clearing component of one of Italy's critical retail payment systems and as a service provider to critical Italian infrastructures (e.g. the Italian Interbank Network (*Rete Nazionale Interbancaria* – RNI)), the Banca d'Italia directly oversees SIA by virtue of national legislation. SIA is also a service provider to the pan-European systemically important payment system STEP2-T, which is overseen by the Eurosystem.

COLT, a Luxembourg-domiciled company, provides connectivity to a number of stock exchanges across Europe and some of the fastest connections between key trading capitals, such as London and Frankfurt. A SIA-Colt partnership has been awarded one of the two Value Added Network (VAN) Service Provider licences for T2S, i.e. a licence to design, create and manage the network infrastructure used to connect CSDs, Eurosystem central banks and some large European banking groups to T2S.

Within the framework of Eurosystem oversight activities and as service provider for STEP2-T, SIA conducted a self-assessment against the oversight expectations applicable to CSPs (Annex F of the PFMI), which was later submitted to EBA CLEARING. The ECB/Eurosystem used this self-assessment against Annex F as an input for its oversight of STEP2-T.

To conduct its oversight, the Banca d'Italia relies on international standards, including Annex F of the PFMI, and follows a three-step approach that includes (a) ongoing information gathering; (b) regular oversight analysis via document review, onsite inspections and regular meetings; and (c) based on the findings, the issuance of recommendations and possibly sanctions for non-compliance.

During the period 2014-16, as lead overseer, the Banca d'Italia devoted particular attention to the analysis of operational risk and business continuity, with a focus on cyber threats. SIA has a comprehensive enterprise risk management framework in place.

2.2 Other activities

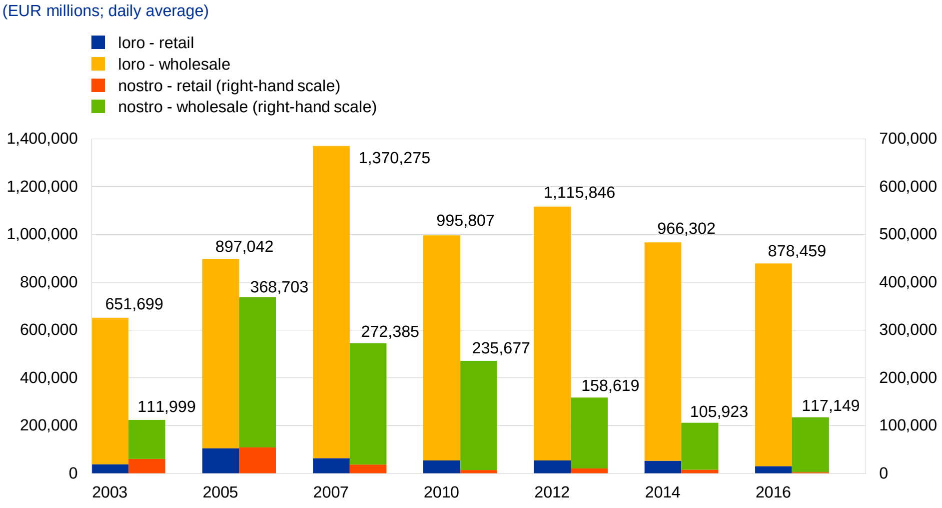
Correspondent banking

Results of the Tenth survey on correspondent banking in euro – 2016

Correspondent banking ensures that payments flow between credit institutions and allows indirect access to payment systems, thereby representing an important link in the payment chain. By facilitating customer access to national and cross-border payment services, correspondent banking arrangements also support financial inclusion, especially by providing individuals and small businesses with simple and efficient means of making payments and accessing financial services worldwide.

The Eurosystem has been conducting surveys on correspondent banking business since 1999 in order to monitor its importance in terms of size and development. However, the Eurosystem has set no specific oversight requirements for correspondent banks in order to avoid any double regulation of these institutions, as correspondent banking is already subject to banking supervision. Most recently, the Tenth survey on correspondent banking was conducted in May 2016 and, like the previous two surveys, covered only those banks with an average daily turnover on loro accounts of at least €1 billion. Sixteen banks located in seven euro area countries (Austria, Belgium, France, Germany, Italy, Luxembourg and Spain) participated in the tenth survey on a voluntary basis. The Tenth survey on correspondent banking in euro was published in February 2017.[48]

Chart 1
Turnover of loro and nostro transactions



Source: Tenth survey on correspondent banking in euro, ECB, February 2017.

The results of the Tenth survey on correspondent banking show a decrease of almost 10% in loro account turnover since 2014, as well as a decrease in the number of customers and in average transaction size. Although correspondent banking remains an important channel for making payments in euro, the completion of the SEPA migration and the introduction of new regulatory requirements for credit institutions (Know Your Customer (KYC) and Anti-Money Laundering and Countering the Financing of Terrorism (AML/CFT)), along with a general shift in business strategy, have significantly contributed to an overall decrease in correspondent banking business in recent years.

The correspondent banking business is expected to continue to play an important role in providing payment services within the euro area and worldwide. Nevertheless, there is a degree of uncertainty in the correspondent banking market with regard to future prospects, which depend on the costs and requirements of direct participation in payment systems, the regulatory framework and the implementation of banks' strategies. Competition from fintech new entrants and payment innovators is also an important factor to be taken into consideration.

Interdependencies

FMIs are increasingly connected via complex interrelationships, either directly across systems (system-based interdependencies), via participation or service provision by financial institutions (institution-based interdependencies) or via external factors

48 Tenth survey on correspondent banking in euro, 2016.

(environmental-based interdependencies). Interdependencies of FMIs have the potential to bring higher efficiency to the functioning of financial market infrastructures, but they can also transmit risks or amplify shocks that originate in or affect an infrastructure. Therefore, interdependencies have been an ongoing subject of attention for overseers over the last decade[49] and the focus of regulatory developments in the PFMI, the SIPS Regulation, EMIR and the CSDR. More recently, interdependencies in the central clearing network have been studied at international level with a view to better understanding the role of large banks which serve as clearing members as well as providers of financial services to CCPs.[50]

Following on from previous exercises conducted by the ESCB Payments and Securities Settlement Committee – renamed as the Market Infrastructure and Payments Committee (MIPC) in 2016 – the Eurosystem is in the process of updating the relevant methodologies with a particular focus on crisis management preparations. Further work is also ongoing on the collection and analysis of information on the different roles of institutions in FMIs, and this will provide vital information to overseers regarding the extent to which certain institutions are interconnected and how. A list of quantitative indicators is being prepared to support overseers as part of the oversight crisis communication framework aimed at enhancing information-sharing between overseers in the ESCB. In coordinating oversight crisis management, the ESCB relies on accurate information in the assessment of potential risks in a crisis management context, including concentration and liquidity risk. The oversight crisis communication framework goes beyond those developed for the cooperative oversight of individual systems, as system-specific frameworks might not be sufficient for certain types of crisis.

49 "The interdependencies of payment and settlement systems", June 2008, CPMI.

50 Analysis of Central Clearing Interdependencies of 5 July 2017.

3 Outlook

Going forward, the Eurosystem will continue to promote the safety and efficiency of FMIs and payment instruments under its oversight mandate, responding to regulatory, technical and other developments as they emerge to ensure the overall resilience of the financial system in the euro area.

In the area of payment systems, Eurosystem overseers will cooperate with system operators and relevant authorities to ensure that infringements and/or recommendations issued in the context of recent assessment exercises are appropriately addressed. Eurosystem overseers will also embark on assessments of instant payment initiatives to ensure they respect appropriate standards.

With the completion of the final T2S migration wave in September 2017, oversight activities related to T2S will concentrate on the system in live operation. In this respect, work to revise the T2S oversight framework will be completed before the end of 2017, paving the way for the launch of a comprehensive assessment of T2S in 2018. Cooperation with ESMA and other relevant authorities under the T2S Cooperative Arrangement will also be continued.

Concerning CSDs/SSSs, authorisations under the CSDR will be the main focus of attention in the immediate future. While CSDs are obliged to apply for authorisation under the CSDR by 30 September 2017, the process is expected to take some time to conduct as individual CSDs strive to ensure all documentation is complete to support the authorisation process. Individual Eurosystem central banks will be involved in the authorisation as overseers of CSDs, while the Eurosystem itself will serve as the relevant authority from a CBI perspective and as the authority in whose books the cash leg is settled.

In the area of CCPs, the Eurosystem will continue to participate in EMIR CCP colleges from a Eurosystem central bank of issue perspective, while individual Eurosystem members will continue to perform their CCP oversight functions under national mandates. Regarding EMIR colleges for UK CCPs, the United Kingdom's decision to leave the EU will mean that UK CCPs (which clear significant amounts of euro-denominated transactions) will no longer be subject to the EMIR college framework. The Commission proposal for amending EMIR, published on 13 June 2017, seeks to address this situation by strengthening the supervisory regime applicable to third-country CCPs. Under the terms of the Commission proposal, the prior approval of the Eurosystem as central bank of issue will be required for the recognition of systemically important (Tier 2) third-country CCPs, as well as for the adoption by ESMA of supervisory decisions concerning the areas of major relevance from a central bank of issue perspective. The agreement of the Eurosystem would also be required before ESMA could propose to the Commission that a systemically important third-country CCP should not be recognised (on this basis, the Commission would be empowered to decide that, if the CCP wished to provide clearing services in the Union, it should be authorised and established in one of the EU Member States).

Concerning payment instruments, the main activities for the period ahead relate to the implementation of PSD2.

In relation to CSPs, the Eurosystem will continue its participation in the cooperative oversight of SWIFT and SIA.

Finally, work on cyber resilience will remain high on the Eurosystem oversight agenda in the years to come, given the highly interconnected and interdependent nature of the financial system. The threat of cyber attacks in this complex landscape is further accentuated by its dynamic, evolving nature and the fact that it is a borderless threat. In 2016 the Eurosystem developed an oversight strategy for cyber resilience for FMIs based on the CPMI-IOSCO Cyber Guidance, and it will continue working on its implementation in 2017 and subsequent years. The cyber strategy will contribute to strengthening the overall cyber resilience of FMIs across multiple euro area jurisdictions, recognising in this respect the significant interdependencies across all financial system stakeholders on a cross-border basis. The strategy must be closely aligned, and operate in parallel, with the cyber resilience strategy pursued by other areas of the financial market to ensure that cyber resilience is enhanced across the financial system as a whole and to ensure all stakeholders are moving together in a similar direction.

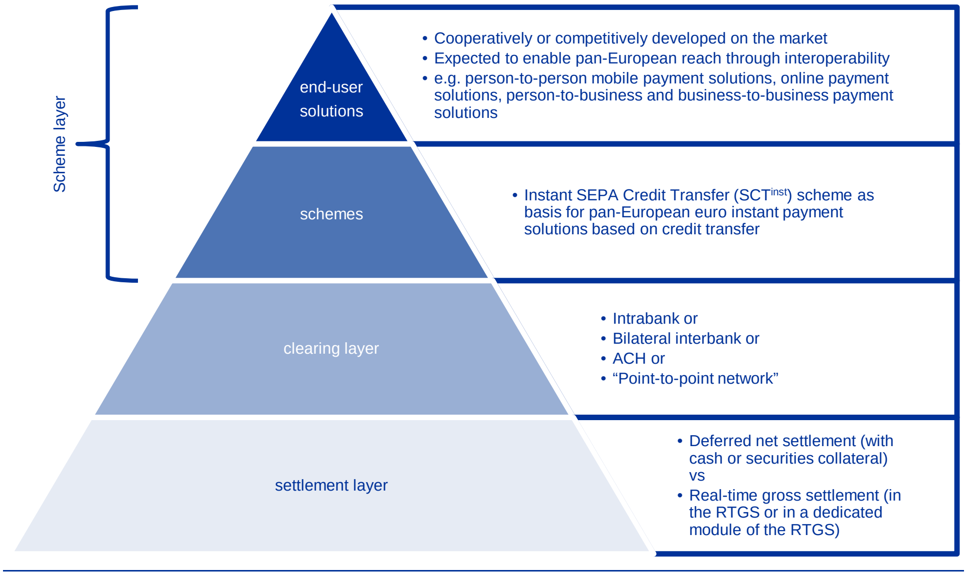
4 Special articles

4.1 Instant payments

In the field of instant payments,[51] as with retail payments more broadly, the scope of Eurosystem oversight includes payment schemes[52] and the clearing and/or settlement systems through which payments made according to the schemes are channelled. Focusing on the latter, the oversight standards for retail payment systems – i.e. the Revised oversight framework for retail payment systems (February 2016), the SIPS Regulation (depending on the systemic importance of the systems processing instant payments) and the Oversight expectations for links between retail payment systems (November 2012) – apply within the general principles of the revised Eurosystem oversight policy framework (July 2016). The assessment exercises of the payment systems processing SCT Inst transactions, including the mutual links that the latter may set up in order to ensure pan-European reachability, are scheduled to commence not earlier than 2019 (with a pre-assessment to be performed in the course of 2017).

Figure 2

Instant payments



51 Instant payments are immediate or close to immediate transfers of reusable funds between end users, with 24/7/365 availability.

52 As outlined in Section 2.1.7.

4.2 Cyber resilience

In June 2016 CPMI-IOSCO published its "Guidance on cyber resilience for financial market infrastructures" (Cyber Guidance), which aims to raise the cyber maturity of FMIs around the world. In the light of this, the Eurosystem has developed a "Eurosystem cyber strategy", the aim of which is to operationalise the Cyber Guidance and improve cyber resilience in the euro area by enhancing FMI readiness and fostering sectoral resilience and collaboration. Although, in line with Eurosystem competences, the focus of the strategy lies on the payment systems in the euro area, the concrete deliverables of the strategy will be developed so that these can also be used by other authorities to foster the cyber resilience of, for example, credit institutions, CSDs, CCPs and trade repositories. To achieve the cyber resilience vision, the strategy is predicated on three core pillars, with underlying strategic objectives. Under pillar 1, the responsibility for ensuring cyber resilience lies solely with the respective FMIs. To facilitate the enhancement of FMI cyber resilience, overseers will develop a cyber resilience assessment toolkit and methodology and a FMI cyber testing framework. The aim is to inform overseers of the cyber readiness of the payment systems and allow overseers to work closely with the operators to enhance their level of cyber resilience. Under pillar 2, FMIs, together with their participants, form an interconnected and interdependent financial ecosystem. Enhancing the cyber resilience of individual FMIs is not enough; the collective cyber resilience capability of the European financial sector also needs to be enhanced and matured. Cross-border/cross-authority collaboration, European information-sharing arrangements and cyber defence exercises are among the objectives and deliverables. Under pillar 3, current cooperation initiatives in the market in the field of cyber security/cyber resilience are manifold, but all have a more technical character. At European level, there is no occasion on which authorities, FMIs, CSPs and the like meet to discuss cyber resilience of the financial sector at a strategic level. Therefore, the strategy aims to develop a proposal for a European high-level (i.e. board level), strategic FMI regulator/industry forum to establish trust and collaboration, to catalyse joint initiatives to enhance sector capabilities and capacities, and to increase cyber awareness at board level in FMIs and in authorities. As a first step under pillar 3, a high-level meeting on cyber resilience for pan-European FMIs was organised by the ECB on 19 June 2017.[53]

[53] See the introductory remarks of ECB Executive Board Member Benoît Cœuré at that meeting.

Figure 3
Eurosystem cyber strategy

4.3 PSD2 RTS on Strong Customer Authentication (SCA) and Common and Secure Communication (CSC)

Development of the regulatory technical standards on SCA and CSC

The EBA, in close cooperation with the ECB and supported by SecuRe Pay, has prepared draft Regulatory Technical Standards on strong customer authentication and common and secure communication (RTS on SCA and CSC) under Article 98 of PSD2. The RTS are addressed to PSPs, specifying (1) the requirements for SCA, (2) the exemptions from the application of SCA, (3) the security measures to protect the confidentiality and integrity of personalised security credentials (PSC), and (4) the requirements for common and secure open standards of communication. It is important to note that when drafting these RTS, the EBA and the ECB had to achieve an appropriate balance between different, and at times competing demands, including: enhancing security, promoting competition, ensuring technology and business-model neutrality, contributing to the integration of European payments, protecting consumers, facilitating innovation and enhancing customer convenience.

In order to take into consideration all market aspects at the beginning of the development process, a discussion paper[54] was released by the EBA in December 2015, and a large number of responses were received from diverse market players. The responses supported further drafting of the RTS, which were published for comment by the market in a consultation paper (August 2016). Once the consultation period had ended (October 2016), the EBA, in close cooperation with the ECB, reviewed and assessed the responses (224 submissions). The three key issues

54 The discussion paper was issued with the purpose of receiving early input from interested market participants on a number of issues that were key to the development of the RTS.

mentioned by the market were (1) the scope and the technologically neutral character of the requirements; (2) the exemptions, including scope, thresholds and the requests from many respondents to add an exemption based on the results of a “transaction risk analysis” conducted by the PSP; and (3) access to payment accounts by third-party providers and the requirements governing the information shared.

The EBA, in cooperation with the ECB, carefully considered the market responses and addressed them in the “Final Report – Draft RTS on SCA and CSC under Article 98 of PSD2”, which was published and submitted to the European Commission on 22 February 2017. The Commission is expected to take a decision on adoption towards the end of 2017.

Relevance of the RTS on SCA and CSC for the oversight of payment schemes

The RTS are relevant to the oversight of payment schemes in the following ways.

- The PSPs, as participants in a payment scheme (e.g. cards, SEPA direct debit and SEPA credit transfer), have to be compliant with the applicable law (e.g. PSD2, RTS on SCA and CSC).
- Because the PSPs need to comply with the legislation applicable to them, the payment scheme with an operational role in the functioning of the scheme (i.e. card payment schemes) has to take measures to ensure this happens or at least is not impeded (e.g. technically support SCA, as defined in the RTS).

As a consequence, the guide for the assessment of each payment scheme against the oversight standards will be improved with different provisions in line with the second point above. As for the first point, both the standards and the guides for the assessment of the different payment schemes already include a generic requirement for compliance with the applicable law.[55]

55 More information on the oversight standards of payment instruments can be found on ECB’s website.

Annex 1
Eurosystem oversight policy documents

General Framework

Committee on Payments and Market Infrastructures and International Organization of Securities Commissions (2012), *Principles for financial market infrastructures*, Bank for International Settlements, April (adopted by the ECB's Governing Council in June 2013).

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

European Central Bank (2014), *ECB Regulation on oversight requirements for systemically important payment systems*, July.

European Central Bank (2016), *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.

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 (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.

European Central Bank (2012), *Oversight expectations for links between retail payment systems (OELRPS)*, November.

European Central Bank (2013), *Recommendations for the security of internet payments – final version after public consultation*, January.

European Central Bank (2014), *Assessment guide for the security of internet payments*, February.

European Central Bank (2014), *Final recommendations for the security of payment account access services following the public consultation*, May.

European Central Bank (2014), *Guide for the assessment of direct debit schemes against the oversight standards*, November.

European Central Bank (2014), *Guide for the assessment of credit transfer schemes against the oversight standards*, November.

European Central Bank (2014), *Assessment methodology for payment systems*, August.

European Central Bank (2015), *Guide for the assessment of card payment schemes against the oversight standards*, February.

European Central Bank (2016), *Revised oversight framework for retail payment systems*, February.

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 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 oversight sections of 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 respective NCB's dedicated website. The table below lists pertinent links to Eurosystem central bank websites.

Table 5
Eurosystem central bank oversight internet page

Central bank	Link to oversight information available on the internet
Austria	https://www.oenb.at/en/Financial-Stability/payment-systems-oversight.html
Belgium	https://www.nbb.be/en/financial-oversight/oversight
Cyprus	https://www.centralbank.cy/en/payment-systems-services/oversight-of-payment-clearing-and-settlement-systems
Estonia	http://www.eestipank.ee/en/payment-and-settlement-systems
France	https://www.banque-france.fr/en/financial-stability/payment-systems-and-market-infrastructure/systemes-de-paiement.html
Finland	https://www.suomenpankki.fi/en/financial-stability/oversight-of-market-infrastructure/
Greece	http://www.bankofgreece.gr/Pages/en/PaymentsSystems/oversight.aspx
Germany	http://www.bundesbank.de/Navigation/EN/Tasks/Payment_systems/Oversight/oversight.html
Ireland	http://www.centralbank.ie/paycurr/Pages/introduction.aspx
Italy	http://www.bancaditalia.it/compiti/sispaga-mercati/index.html
Luxembourg	http://www.bcl.lu/en/payment-systems/surv_sys/index.html
Latvia	https://www.bank.lv/en/about-us/tasks/payment-systems/oversight
Lithuania	https://www.lb.lt/system_oversight_2
Malta	http://www.centralbankmalta.org/site/oversight.html
Netherlands	http://www.dnb.nl/en/payments/oversight/index.jsp
Portugal	http://www.bportugal.pt/en-US/pagamentos/Superintendencia/Pages/inicio.aspx
Slovenia	http://www.bsi.si/en/payment-systems.asp?MapaId=1486
Slovakia	http://www.nbs.sk/en/payment-systems/oversight
Spain	http://www.bde.es/bde/en/areas/sispago/Vigilancia_de_lo/Vigilancia_de_l_931ea69f5eb1921.html
ECB	http://www.ecb.europa.eu/paym/pol/html/index.en.html

Annex 3
Statistical information

Table 6
Overview of volume of Transactions per SIPS

(millions of transactions; total for the period)

	TARGET2	EURO1/STEP1	STEP2-T	CORE(FR)
2010	87.18	59.37	525.02	12,816.57
2011	88.98	62.32	786.20	13,177.62
2012	89.62	66.59	1,016.87	13,432.05
2013	91.34	64.14	1,807.06	13,635.44
2014	87.76	57.68	8,957.18	13,924.87
2015	88.59	55.26	9,325.97	14,180.17
2016	88.96	53.34	10,419.03	14,432.20

Source: ECB Statistical Data Warehouse.

Table 7
Value of Transactions per SIPS

(EUR billions; total for the period)

	TARGET2	EURO1/STEP1	STEP2-T	CORE(FR)
2010	631,439.95	62,207.65	2,385.06	5,119.77
2011	651,274.94	64,020.31	2,984.00	5,373.14
2012	711,025.77	57,907.27	3,511.83	5,405.64
2013	559,695.98	48,677.70	4,748.83	5,376.66
2014	498,726.50	41,249.94	11,072.72	5,373.57
2015	508,982.34	44,142.52	12,217.35	5,540.98
2016	485,811.40	41,103.58	13,169.27	5,513.00

Source: ECB Statistical Data Warehouse.

Table 8

Value of instructions processed by euro area CSDs

	Value of delivery instructions processed by euro area CSDs (EUR billions)				
	2012	2013	2014	2015	2016
NBB-SSS	10,250	8,263	10,838	8,028	8,714
Euroclear Belgium	553	783	836	934	958
Euroclear Bank	308,953	342,232	388,500	439,954	445,981
Clearstream Banking AG	55,784	59,685	79,740	66,725	46,578
Estonia ECSD	2	3	3	2	3
BOGS (GR)	1,630	1,747	1,589	3,679	3,438
Hellenic Exchanges (HELEX)	21	50	71	44	33
Iberclear	76,139	66,580	70,820	63,712	54,062
Regional SSSs	59	45	41	24	4
Euroclear France	122,896	131,224	109,907	92,118	103,286
Monte Titoli	58,456	62,349	75,945	66,409	66,682
CDCR (CY)	4	2	1	2	2
LCD-DENOS (LV)	2	3	3	6	5
CSDL (LT)	3	3	3	7	3
Clearstream Banking S.A.	71,850	77,295	86,462	85,384	83,692
VP LUX	235	224	174	174	42
LUX CSD	-	13	7	9	4
MSE (MT)	2	2	2	3	5
Euroclear Netherlands	4,489	4,402	4,366	4,889	4,695
OEKB (WSB SYSTEM)	221	219	231	177	199
Interbolsa (PT)	116	170	263	169	172
KDD Slovenia	23	18	28	24	27
CDCP SR (SK)	40	38	31	34	40
Euroclear Finland	437	487	599	554	583

Source: ECB Statistical Data Warehouse (https://sdw.ecb.europa.eu/reports.do?node=1000001581).

Table 9

Volume of instructions processed by euro area CSDs

	Volume of delivery instructions processed by euro area CSDs (EUR thousands)				
	2012	2013	2014	2015	2016
NBB-SSS	583	551	949	498	517
Euroclear Belgium	1,802	1,908	2,118	2,467	2,377
Euroclear Bank	64,858	70,096	75,708	83,725	84,550
Clearstream Banking AG	52,795	61,222	55,331	61,175	56,048
Estonia ECSD	88	86	74	78	89
BOGS (GR)	281	155	196	111	91
Hellenic Exchanges (HELEX)	6,346	7,346	7,568	6,242	4,859
Iberclear	25,900	28,297	33,256	31,761	13,333
Regional SSSs	85	61	63	33	5
Euroclear France	23,620	24,382	24,296	25,612	25,562
Monte Titoli	21,292	20,997	24,663	23,718	22,234
CDCR (CY)	188	40	45	52	37
LCD-DENOS (LV)	44	42	31	34	30
CSDL (LT)	95	99	86	69	77
Clearstream Banking S.A.	21,585	22,100	24,897	24,014	25,805
VP LUX	8	7	6	6	3
LUX CSD	-	2	24	20	17
MSE (MT)	17	18	31	40	43
Euroclear Netherlands	4,998	5,348	5,707	6,242	5,894
OEKB (WSB SYSTEM)	1,136	1,252	1,324	1,185	1,138
Interbolsa (PT)	838	973	1,240	984	923
KDD Slovenia	120	98	154	97	305
CDCP SR (SK)	238	148	124	57	33
Euroclear Finland	5,062	6,188	6,332	6,817	7,085

Source: ECB Statistical Data Warehouse.

Annex 4
Abbreviations

AISP	Account information service provider
BCBS	Basel Committee on Banking Supervision
CBI	Central bank of issue
CCP	Central counterparty
CDS	Credit default swaps
CESR	Committee of European Securities Regulators
CMG	Crisis Management Group
CPMI	Committee on Payments and Market Infrastructures
CSC	Common and secure communication
CSD	Central securities depository
CSDR	Central Securities Depository Regulation
CSP	critical service provider
EBA	European Banking Authority
EMIR	European Market Infrastructure Regulation
EPC	European Payments Council
ESAs	European Supervisory Authorities
ESCB	European System of Central Banks
ESMA	European Securities and Markets Authority
FMI	Financial market infrastructure
FSB	Financial Stability Board
G7	Group of Seven
G10	Group of Ten
G20	Group of Twenty
IOSCO	International Organization of Securities Commissions
IRS	Interest rate swap
LVPS	Large-value payment system
MIPC	Market Infrastructure and Payments Committee
NCA	National competent authority
NCB	National central bank
ORPS	Other retail payment system
OTC	Over the counter
PFMI	Principles for financial market infrastructures
PIRPS	Prominently important retail payment system
PISP	Payment initiation service provider

PSD2	Payment Services Directive
PSP	Payment service provider
RPS	Retail payment system
RTGS	Real-time gross settlement system
RTS	Regulatory technical standards
SCA	Strong customer authentication
SCT	SEPA credit transfer
SDD	SEPA direct debit
SEPA	Single Euro Payments Area
SecuRe Pay	European Forum on the Security of Retail Payments
SIPS	Systemically important payment system
SSM	Single Supervisory Mechanism
SSS	Securities settlement system
TPP	Third-party payment service provider
T2S	TARGET2-Securities

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