Financial Innovations in the Euro area Payment and Securities Settlement Systems

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Abstract

The main purpose of this case study is to demonstrate what are the key financial innovations in the euro area payment and securities settlement systems. In particular, the main innovations consist of the completion of the phased migration to the TARGET2 infrastructure, the migration towards a single technical platform for settlement of securities transactions in Europe – TARGET2-Securities, and the introduction of a single retail payment market in euro – the Single European Payments Area (SEPA) and its products, schemes and frameworks. Users of this case study are led step by step to see what is the overall performance of the key euro area large-value payment systems and the retail payment market. The role of the existing international oversight arrangements is also examined in the study.

Keywords: Payment systems; Securities settlement systems; SEPA; TARGET2; TARGET2-Securities; Payment systems oversight.

1. Introduction

Alongside consolidation and globalization of the financial markets, the increase in values exchanged in payment and settlement systems over the past decade was remarkable. The launch of the euro as of January 1, 1999 and developments in the technology were the two main factors contributing to the overhaul and reshaping of the infrastructure for effective payments and for the trading and settlement of securities. The advent of the euro has also accelerated efforts to harmonize and consolidate payments and securities settlement systems.

Nowadays, the market infrastructures are exposed to a wide range of credit, liquidity, operational and legal risks. Moreover, these infrastructures channel the flow of payments for goods, services and financial assets, and their smooth operation is therefore a crucial prerequisite for the proper functioning of the financial system and the overall economy. In particular, given their extensive role and the large values and volumes of financial transactions they handle, any malfunctioning of these infrastructures can have negative repercussions for the implementation of monetary policy, the stability of the financial system and the currency. That's why in the current case study examines the key financial innovations in the euro area payment and securities settlement systems that are critical to the smooth functioning of the European financial system in times of crisis.

The increased financial markets integration and globalisation have also enhanced the need for cross-border information-sharing and coordination in the performance of oversight and for the consistency of oversight approaches. As a consequence, arrangements for ensuring close cooperation between overseers, both within the euro area and globally, as well as for cooperation of overseers with other authorities, have gained importance.

The research is based on a review of accumulated literature and analysis of statistical data and documents containing information related to the euro area financial market infrastructure, payment and securities settlement systems and innovative payment

instruments, schemes and frameworks. This case is based on financial data published by the European Central Bank (ECB).

The research is organized as follows: Section 2 provides a brief overview of literature on payment and securities settlement systems. Section 3 is focused on the analysis of the most relevant innovations in the euro area payment and settlement systems. Section 4 provides an overview of the payment oversight function and the international cooperation arrangements. The paper concludes with summarizing the results from the study.

2. Literature review

Studying the euro area payment and securities settlement systems is a relatively recent area of research in finance. Between 1992 and 1999 the Committee of Governors of the central banks of the member states of the European Economic Community (EEC) was the body issuing the so-called "Blue Book"– publication concerning the payment and settlement systems in the EEC. Since the establishment of the European Central Bank (ECB) in 1999, the Bank started to monitor and oversight the payment system instruments, payment systems and securities settlement systems in all member states of the European Union (EU). The first Blue Book was published by the ECB in 2001.

The ECB provides a comprehensive description of the payment and securities settlement systems and infrastructures in all EU member states. The ECB, together with the Eurosystem is interested in the prudent design and management of the payment and settlement systems which process its currency. It pays close attention to their smooth functioning, as well as to reducing the related potential risks.

The Bank for International Settlements (BIS), Basel, and particularly the Committee on Payment and Settlement Systems (CPSS) is the standard setting body for payment and settlement systems. It contributes to strengthening the financial market infrastructure through promoting sound and efficient payment and settlement system. In an environment of enormously increased volumes handled in wholesale (large-value) payment systems, the awareness of potential threats to systemic stability is particularly increased. That is why the BIS is highlighted the associated stability risks and suggested key standards and best practices. The CPSS base codes, standards and best practices are the Core principles for systemically important payment systems (BIS, 2001a), Recommendations for securities settlement systems (BIS, 2001b) and Recommendations for central counterparties (BIS, 2004). These standards are deemed particularly essential for strengthening the financial architecture worldwide.

Many authors (Kohlleppel, 2001, Lichter, 2001, Nieuwenhof, 2001, Humphrey, 2009, and others) discuss the euro retail payments and retail payment networks, their access criteria, end-to-end payment times, pricing policy and other operational characteristics. Emphasis is placed mainly on the retail payments integration and innovation in the euro area. Large value payment systems (LVPSs) are mostly analyzed by Bech and Soramäki, 2001, Selgin, 2004, Rosati and Secola, 2005, Pagès and Humphrey, 2005, Bolt and Humphrey, 2005, Holthausen and Rochet, 2006, Carbó-Valverde and Liñares-Zegarra, 2009, and others. Comparative studies of the LVPSs in the US and the euro area are made by Martin, 2005, Millard and Saporta, 2005, Haldane et al., 2008, and others.

Nowadays a growing interest is attached on the securities clearing and settlement systems. For instance, Terol and Russo, 2000, examine the euro area securities clearing and settlement infrastructures, Holthausen and Monnet, 2005, analyze the interaction between the securities settlement and financial integration, while Blanco, 2001, studies the euro area government securities markets.

Wide range of country reports are also published as regards the payment and securities settlement systems. For instance, Rybiński, 2007, examines the SEPA project and the payment system's development in Poland. Snellman, 2000, Jyrkönen and Paunonen, 2003, Jyrkönen, 2004, Hasan et al., 2009 and 2010, and others, investigate the retail payment systems in Finland. Racocha, 2004, studies the payment system's performance in the Czech Republic, Kalckreuth et al., 2009, examines the experience in Germany. Harrison et al. 2005, Millard and Saporta, 2005, Merrouche and Schanz, 2008, and others analyze the UK payment system. De Sèze, N., 2006 examines the TARGET2 project and its implications for the Banque de France, while Bardinet, 2003, discuss the French retail payment system issues. España and Gorjón study the TARGET2 and SEPA and their introduction in Spain.

Since the beginning of the SEPA project a large number of publications have been released regarding the integrated market infrastructure. Finocchiario, 2006, Saccomanni, 2007, Draghi, M, 2008, Kemppainen, 2008, Bolt and Schmiedel, 2009, and many others, discuss the pathway to integration of financial services markets in Europe and particularly the advantages of SEPA and the directions of change.

Many authors generally find the conclusion that the overall banking system performance is better in countries where the payment service markets are more highly developed, and the payment transaction technologies are highly adopted.

3. Financial innovations in the euro area payment and securities settlement systems

The smooth functioning of financial markets infrastructures is of great importance for the overall stability of the financial system. It is crucial for a sound currency and for the conduct of monetary policy, and the maintenance of banking and financial stability. The smooth operation of systemically important payment and settlement systems contributes to the financial integration in the euro area and the implementation of the single European monetary policy. The operational reliability and resilience of both key infrastructures and the facilities servicing these infrastructures are of particular importance in times of stress caused by, for example, turbulent market conditions or strains on liquidity, in order not to exacerbate the situation. This is especially relevant to the world financial and economic crisis from the mid-2007 onwards. In the euro area the financial turmoil was intensified since September 2008 when the volatility of the financial markets was increased.

According to the Treaty establishing the European Community and the Protocol on the Statute of the European System of Central Banks and of the European Central Bank, the Eurosystem is responsible for the conduct of the single monetary policy and for maintaining price stability in the euro area. It has also a number of other tasks that are particularly aimed at fostering the efficiency and security for all kinds of transfer of funds and securities in Europe. During the last two decades the importance of payment and settlement system grew significantly owing to the very rapid growth in the volume and the value of payments on money, foreign exchange and financial markets. Payment systems have also become more vulnerable because of their ever-increasing reliance on fast evolving electronic data-processing and telecommunication technologies, as well as their complex, interlinked structure. In addition to payment instruments, the ECB and the national central banks (NCBs) of the euro area also have a strong interest in the field of securities clearing and settlement systems. Their responsibility in this field became even more apparent with the introduction of the euro as the single currency and the subsequent scale and speed of European financial integration. As the ECB (2009b, p. 7) declares: "*The safe and efficient functioning of securities clearing and settlement systems in the euro area is directly relevant to the effective fulfillment of the Eurosystem's responsibilities*." In fact, the robustness and smooth operation

of clearing and settlement infrastructures are indispensable for the stability of the currency, the financial system and the economy in general.

The key innovations in the euro area payment and settlement systems analyzed in the study are based on the concept developed by Bech et al. (2008) that currently three forces are staying behind the interbank payment environment and the LVPSs development around the world. These trends are the following: (1) broader access to the new systems which are not limited to one country or currency, while the systems are able to maintain their safety and efficiency; (2) larger use of the LVPSs due to the immense growth in the financial sector, changes in the role of firms and their products, and greater globalization of financial institutions; (3) evolution of the central bank policies is resulting in central banks becoming more active in monitoring existing and planned systems, assessing systems according to international standards, and inducing change. As a result, the paper examines the key financial innovations in the euro area, such as the completion of the phased migration to the TARGET2 infrastructure, the migration towards a single technical platform for settlement of securities transactions in Europe – TARGET2-Securities, the establishment of the first pan-European automated clearing house – STEP2, and the introduction of a single retail payment market in euro – the Single European Payments Area (SEPA).

3.1. TARGET system

The establishment of the European large-value payment system – TARGET in 1999 was the most important innovation in the area of payment systems. This laid the foundations for the financial integration across the euro area and thereby, for the ECB to implement single monetary policy effectively.

The first generation of TARGET (Trans-European Automated Real-time Gross settlement Express Transfer) system began operations on January 4, 1999 in parallel with the launch of the euro. The decision for the construct of the system was made much earlier – in March 1995. The TARGET system is run by the Eurosystem. For reasons of consistency with other payment systems, and in order to comply with the Core Principles for systemically important payment systems (CPSS), the Eurosystem has decided to perform oversight over TARGET.

TARGET system is established as an EU-real-time gross settlement (RTGS) system. According to the ECB (2009c, p. 12), TARGET has the following three main objectives: (1) to provide a safe and reliable mechanism for the settlement of euro payments on an RTGS basis; (2) to increase the efficiency of inter-member states payments within the euro area; (3) to serve the needs of the monetary policy of the Eurosystem. As the BIS (2003, p. 83) points out, "*TARGET was developed... first and foremost, to facilitate the integration of the euro money market in order to allow for the smooth implementation of the single monetary policy*". The adopted mechanism for settlement of payments on an RTGS basis contributes to a minimization of risks in making payments. In order to achieve these objectives, TARGET offers the possibility of transferring central bank money on a cross-border basis as smoothly as in the domestic market, making it possible to reuse these funds several times a day.

TARGET system is used for all credit transfers in euro. The following types of transactions are handled by the system: settlement of central bank operations; settlement of large-value netting systems operating in euro; cross-border and domestic interbank and commercial payments in euro. TARGET system is made up of RTGS systems in all participating countries and the ECB payment mechanism (EPM), connected by an interlinking component. In particular, RTGS systems provide processing and settlement which take place in real time (continuously) rather than in batch processing mode. They enable transactions to

be settled with immediate intraday finality. Gross settlement means that each transfer is settled individually rather than on a net basis.

In TARGET, the account of the receiving institution is never credited before the account of the sending institution has been debited. As a result, there is always the certainty for the receiving institution that funds received through TARGET are unconditional and irrevocable. The receiving institution is therefore not exposed to credit or liquidity risk originating from such payments received. The availability and cost of liquidity are two crucial issues for the smooth processing of payments in RTGS systems.

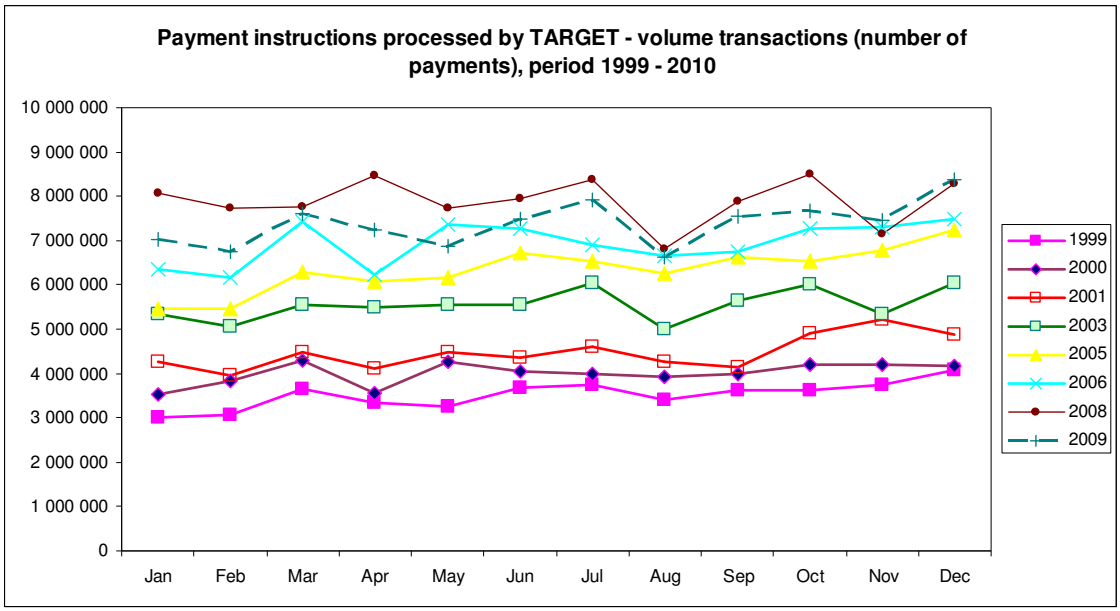
In TARGET, liquidity can be managed very flexibly and it is available at a low cost, since minimum reserves – which credit institutions are required to hold with their central bank – can be used for settlement purposes during the day and intraday credit is provided free of charge. Moreover, the averaging provisions applied to minimum reserves allow for flexibility in the banks' end-of-day liquidity management. The overnight lending and deposit facilities also allow for "last minute" reactions to unexpected liquidity situations (BIS, 2003, pp. 89-90). In addition, the Eurosystem provides intraday credit free of charge. However, all central bank credit has to be fully collateralized. The range of eligible collateral is very wide. Assets eligible for monetary policy purposes are also eligible for intraday credit.

TARGET system was accessible to a large number of participants. Most credit institutions were able to use it to make payments on their own behalf or on behalf of their clients. More than 5,900 banks, including branches and subsidiaries, used TARGET to initiates payments. Over 55,000 banks were addressed via TARGET. All the national RTGS systems comprising TARGET were operational every working day from 7 a.m. to 6 p.m. CET. The use of the system was supported by a transparent pricing structure by which the inter-member states were subject to degressive transaction fees (from €1.75 down to €0.80).

The turnover figures for TARGET have steadily increased since January 1999. At the end of 1999 the total volume of transactions (number of payments) processed by the system as a whole (i.e. both cross-border and domestic payments) was 4,083,252. At the end of 2000 this indicator was reaching 4,158,165, followed by 4,888,771 in December 2001 and 5,492,629 – in December 2002. At the end 2003 the volume of transactions was increased up to 6,041,718, followed by 6,484,910 – in December 2004, 7,237,309 – in December 2005 and 7,483,056 – in December 2006. During the period 2007-2009 on a year-end basis the data are the following: 8,072,268 transactions in 2007, 8,292,844 – in 2008 and 8,379,252 – in 2009 (Graph 1).

In 1999 the daily average number of payments processed by the system as a whole was at the lowest level - 163,157, followed by a steadily increase up to 188,157 – in 2000, 211,274 – in 2001, 253,016 – in 2002, in 2006 – 326,196, in 2007 – 366,179, and in 2009 – 345,680 (Graph 2).

The total value of payments processed by TARGET as a whole (cross-border and domestic payments) was also increasing during the period 1999-2009. Starting from €20,839 billion in January 1999, the total value of payments reached €21,571 billion at the end of 2000 and €29,007 billion at the end of 2001. Considerable increase of this indicator was observed during 2002, when it reached €35,849 billion (in December). At the end of 2004 the payments processed by TARGET represented a value of €40,808 billion, followed by an increase up to €43,751 billion at the end of 2006, €51,031 billion at end-2007 and €62,848 billion at end-2008. Due to the global financial and macroeconomic instability the total value of payments processed by the system on a year-end basis was declined in 2009 to €49,025billion (Graph 3).

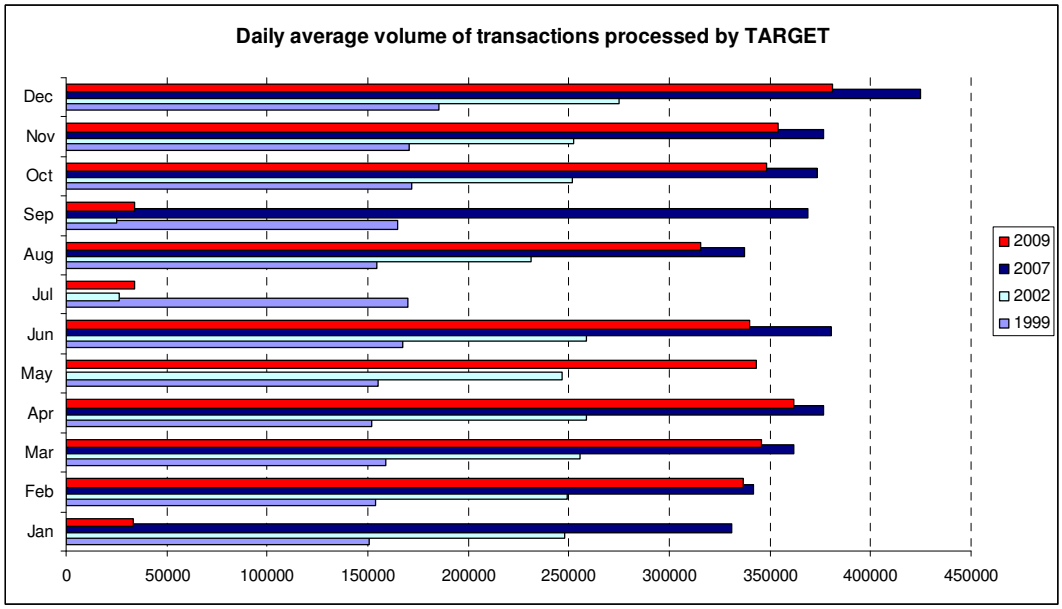


Graph 1

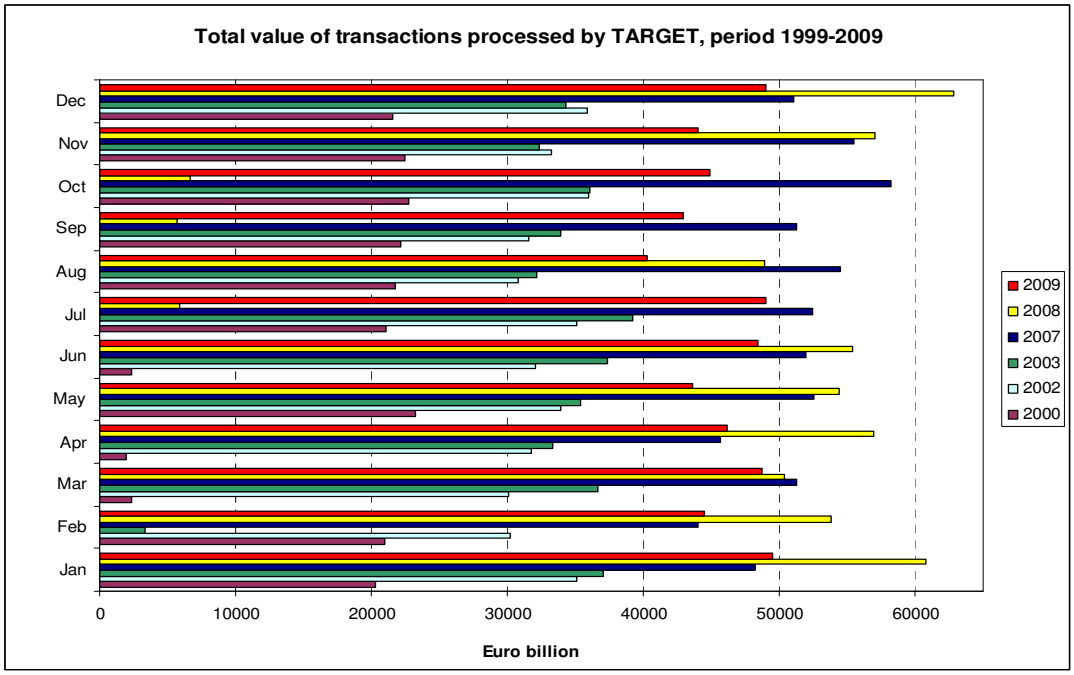
Table 1

Volume of transactions (number of payments) processed by TARGET – year average					
1999	2000	2001	2002	2003	2004
3 521 482	3 998 335	4 471 957	5 376 583	5 550 667	5 767 791
2005	2006	2007	2008	2009	2010*
6 345 884	6 931 666	7 781 308	7 892 615	7 376 377	7 892 615

* As of April 2010. Source: ECB.



Graph 2



Graph 3

Table 2

Value of transactions processed by TARGET – daily average (Euro billion)					
1999	2000	2001	2002	2003	2004
925	1,033	1,299	1,552	1,650	1,714
2005	2006	2007	2008	2009	2010*
1,902.3	2,092.3	2,419	2,667	2,154.7	2,322.6

* As of April 2010. Source: ECB.

As can be seen, TARGET system operated successfully over a number of years. It was proved as an essential vehicle for the implementation of the monetary policy of the Eurosystem. It also helped for the establishment and operation of a single money market within the euro area and to reduce the systemic risk. Moreover, it helped banks to better manage their euro liquidity at national and cross-border level. Thanks to its operational success, TARGET system proved to be one of the three biggest LPVSs in the world – alongside with EURO1 and Fedwire (ECB, 2009d, p. 10).

Despite its advantages, TARGET system operated in a market environment which evolved very rapidly. It demonstrated some shortcomings that stemmed from its heterogeneous technical design. TARGET participants called for an enhanced and more harmonized service offered at the same price across the EU. Furthermore, cost-efficiency was considered problematic by the Eurosystem as the revenues gained did not cover a sufficient proportion of the cost. This was largely attributable to the decentralized structure of TARGET. In order to meet these challenges and to meet user needs, the Eurosystem has developed the next generation of its TARGET system – TARGET2.

3.2. TARGET2 system

Key innovation in the euro area LVPSs during the last few years was the completion of the phased migration from the TARGET infrastructure to the TARGET2 infrastructure in 2008. The smooth and successful migration to the new platform started on November 19, 2007 and ended May 19, 2008. The migration was arranged into three country groups, allowing TARGET users to migrate TARGET2 in different ways and on different dates. In particular, on November 19, 2007 the first group of countries (Austria, Cyprus, Germany, Latvia, Lithuania, Luxembourg, Malta and Slovenia) migrated to the new system. On February 18, 2008 the second group (Belgium, Finland, France, Ireland, the Netherlands, Portugal and Spain) migrated and on May 19 the last group (Denmark, Estonia, Greece, Italy, Poland and the ECB) was successfully connected in TARGET2.

The design of the system was elaborated by the Eurosystem in close cooperation with TARGET users. In TARGET2, the decentralized structure of the first-generation TARGET system was replaced by a single technical infrastructure, called Single Shared Platform (SSP). The SSP is jointly provided by the Banca d'Italia, the Banque de France and the Deutsche Bundesbank, which operate on behalf of the Eurosystem. The SSP offers same high-quality services, functionalities and interfaces, as well as single price structure to all banks in the EU irrespective of where they are located. The SSP structure is demonstrated on Figure 1.

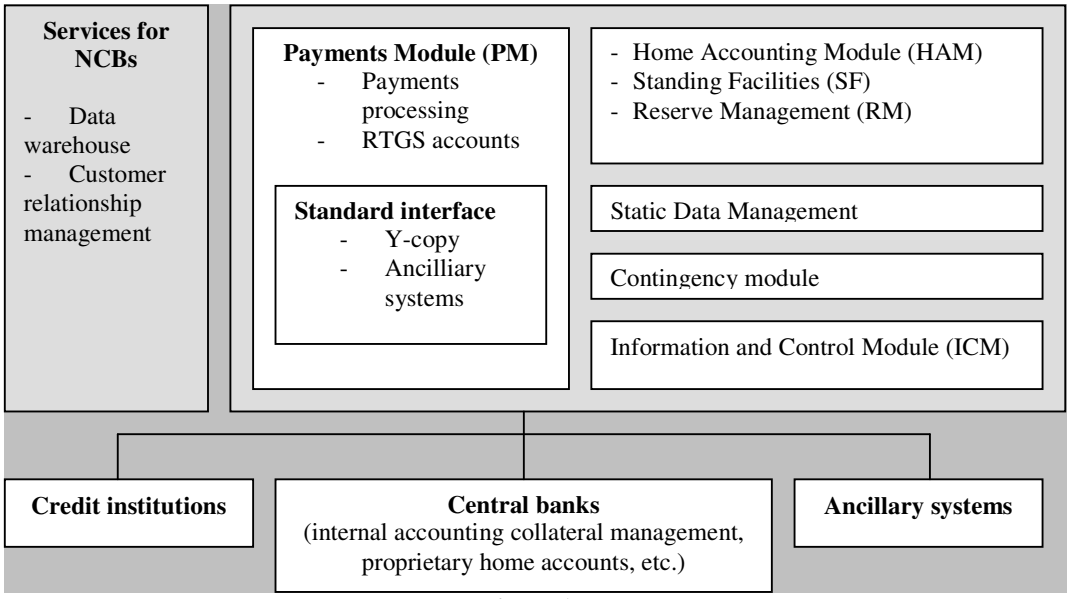


Figure 1

A modular approach was taken in setting up the SSP of TARGET2. Every module is closely related to a specific service, e.g. the Payments Module (PM) for the processing of payments. The PM is connected with the payments and accounting processing services systems and the standing facilities module (SF), the reserve management module (RM), the home accounting module (HAM), the static data module (SD), the contingency module (CM) and the information and control module (ICM). Some of the modules (HAM, SF and RM) can be used by individual NCBs on an optional basis (ECB, 2009a, p. 12). NCBs that do not use these modules offer the respective services via proprietary applications in their domestic technical environment. The central banks have a proprietary home accounts (PHA), reserve management and intraday credit. The banks and the ancillary systems are connected via

SWIFT. Ancillary systems are retail, large-value, forex, money market systems, securities settlement systems and central counterparties (CCPs).

The criteria for direct participation in TARGET2 are the same as in TARGET1. Direct participants must hold an RTGS account in the PM of the SSP with access to real-time information and control features, and therefore are able to: (i) submit/receive payments directly to/from the system; and (ii) settle directly with their respective national central bank. Direct participants are responsible for all payments sent from or received on their account by any TARGET2 entity (i.e. indirect participants) registered through them. Indirect participation implies that payment orders are always sent to/received from the system via a direct participant. Payments are settled in the direct participant's account in the PM of the SSP. Indirect participants are registered by and under the responsibility of the direct participants, which act on their behalf, and are listed in the TARGET2 directory. Only supervised credit institutions established within the European Economic Area (EEA) can become indirect participants. While the TARGET2 is based on a SSP, the NCBs remain responsible for the accounts, business relations and communication with the users in the respective national communities.

SWIFT standards and services are used in TARGET2 (FIN, InterAct, FileAct and Browse) to enable standardized communication between system participants. In particular, in TARGET2 messages can be generally separated into SWIFT FIN messages (customer and interbank payments) and XML traffic (InterAct and FileAct messages). The payment module (PM) of the SSP uses the SWIFTNetFin-Y-Copy service for the processing of all payments within a dedicated SWIFT Close User Group (TARGET2, 2009, p. 14). The business continuity concept of TARGET2 consists of a multi-region/multi-site architecture. For the payment processing and accounting services there are two regions. In which region there are two distant sites. This is combined with the principle of region rotation.

The management of TARGET2 is based on a three-level governance scheme. The tasks are assigned to the Governing Council of the ECB (level 1); the Eurosystem NCBs (level 2) and the SSP-providing central banks (level 3). All countries from the Euro area are covered by TARGET2. Other EU countries may join the system on a voluntary basis. In October 2002 the Governing Council of the ECB decided that after joining the EU the NCBs of the new member states would be given the same rights and obligations with regard to TARGET connection as the non-euro area NCBs already participating in the system.[1] Only when new member states join the euro area does the connection to TARGET2 becomes mandatory, as its use is mandatory for the settlement of any euro operations involving the Eurosystem. In the course of the TARGET2 development, 21 from 26 central banks comprising the European System of Central Banks (ESCB) confirmed their participation in the new system (ECB, 2009b, p. 13). In addition to the ECB and the 16 NCBs that have already adopted the euro, five other NCBs opted for a connection (Denmark, Estonia, Latvia, Lithuania and Poland). As Toledano (2009, p. 6) points out, in the second quarter of 2009, TARGET2 had 942 direct participants, 3,744 indirect participants and 11,034 correspondents. It settled the cash positions of 69 ancillary systems. It processed a daily average of 348,071 payments, representing an average daily value of €2.1 trillion and 99.99% of all the payments were processed in less than one minute.

The following sources of liquidity can be used in TARGET2 (ECB, 2007, p. 39): balances on RTGS accounts, provision of intraday liquidity and offsetting payment flows (i.e. the use of algorithms to settle a number of queued payments). As in the previous TARGET system, intraday credit is granted to participants against eligible collateral by the respective national central bank. A direct participant in the PM has the option to control the use of the

[1] At the time, the Bank of England, Danmarks Nationalbank and Sveriges Riksbank.

available liquidity by means of a reservation system and a limit system, which may, as required, be combined. In TARGET2 the participants are able to reserve liquidity for urgent and highly urgent payments and to dedicate liquidity for the settlement of ancillary systems. Participants are also able to define bilateral and multilateral sender limits and actively manage their payment queues (e.g. by changing the priority or the order of queued transactions).

Liquidity pooling in TARGET2 system is achieved by grouping a number of accounts. TARGET2 offers two variants for liquidity pooling: (i) aggregated liquidity; and (ii) consolidated information. In the aggregated liquidity option, a payment order submitted by a participant belonging to a group of accounts is settled if the payment amount is smaller than or equal to the sum of the liquidity available on all accounts (including credit lines, if any) in the group. Otherwise the payment order is queued. The consolidated information option is an information tool: it gives comprehensive information to the participant subscribing to the service about the liquidity position of all of the entities of the group at any given moment. TARGET2 users have access, via the Information and Control Module (ICM), to comprehensive online information and control of balances and payments. Through the ICM, TARGET2 users have access to the PM and the static data (management) module.

As concerns the pricing scheme for TARGET2, the liquidity pooling service (aggregated liquidity option and consolidated information option) is an optional and separately priced service. The liquidity pooling service is charged at €1,200 per account per annum for the consolidated information option and €2,400 per account per annum for the aggregated liquidity option. Within a group of accounts (with either aggregated liquidity option or consolidated information option), a group pricing is applied, which means that the regressive transaction fee is applied to all payments in the group as if they were sent from one account (ECB, 2007, p. 40).

Given the far-reaching nature of this change and the systemic relevance of TARGET2, the Eurosystem follows the development of TARGET2 particularly closely and carries out comprehensive assessments of its design. Such an assessment was launched in 2006 and focused on the core of the system – the SSP. In addition, the six domestic proprietary HAM applications, which are allowed to continue providing limited RTGS services in the transition period ending 2012, were assessed by the respective NCBs.

The move to TARGET2 has significant benefits in terms of system efficiency and resilience. In particular, TARGET2 establishes an advanced and more harmonised service level based on a common pricing scheme for all participants. TARGET2 also employs a wide range of tools to promote the optimisation of participants' intraday liquidity management. The users of the system have uniform access to comprehensive online information and easy-to-use liquidity control measures.

3.3. TARGET2-Securities

An important innovation which is currently in progress is the establishment of a single European integrated securities market by creating a technical platform for settlement of securities transactions in Europe, named TARGET2-Securities (T2S). In July 2008 the Governing Council of the ECB decided to launch the T2S project to overcome the current fragmentation of the European settlement infrastructure. This decision was supported by all central securities depositories (CSDs) declared their will to join the T2S initiative. Despite the introduction of the euro in 1999, the provision of post-trading services – clearing and settlement – remained fragmented along national lines. There were 19 CSDs operating in the euro area, and almost 40 CSDs in the whole EU. This contrasts significantly with the United States which has highly centralized clearing and settlement infrastructure.

T2S will be a single IT multi-currency platform for settling all traded securities in Europe, eliminating any differences between the settlement of domestic and cross-border transactions. As the ECB (2009d, p. 15) declares: "*T2S will be a state-of-the art settlement engine, providing commoditized and harmonized Delivery-Versus-Payment (DVP) settlement in central bank money in a real-time gross basis. This will extend the most secure settlement method throughout the whole Europe*".

The main difference between the T2S integrated model and previously used interfaced models is that the T2S will be run by the central bank rather than by the CSD. Instead of outsourcing its cash accounts to be managed by the CSD, in the T2S platform the central bank is in sourcing the CSDs' securities accounts (Figure 2). The integrated model of T2S will be operated in conjunction with the SSP for cash payments of TARGET2.

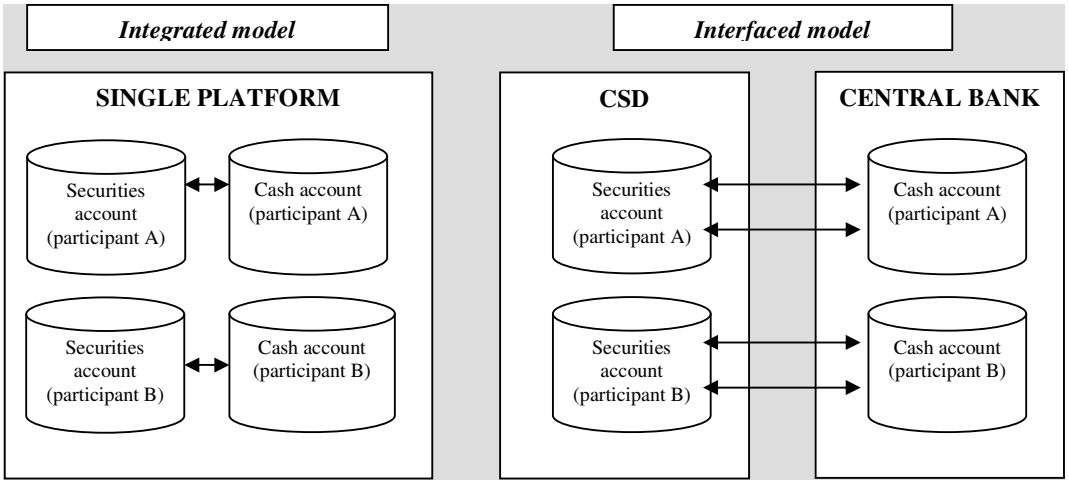


Figure 2

T2S will be a single platform accommodating both the market participant's securities accounts, held at either one CSD or at multiple CSDs, and its dedicated central bank cash accounts. T2S will be a service to CSDs, but not a CSD in itself. CSDs will keep all of their clients' securities positions in T2S, which will map to each CSD's account structure (including direct holdings), without accommodating all of the ancillary account information maintained by CSDs for their clients. Each securities account held in T2S will be attributable to only one CSD. CSDs which join T2S will be "outsourcing" their settlement processes to T2S, however they will retain all their other functions and relations with their customers, including custody and notary functions. CSDs will still be responsible for opening and closing securities accounts in T2S, for liability vis-a-vis their clients, and so on. Furthermore, the rest of the post-trading value chain, in particular as set servicing, corporate action processing and tax and regulatory reporting, will remain a core function of national CSDs.

T2S will maintain dedicated central bank money accounts representing a CSD client's claims in central bank money on that client's chosen national central bank. Each account may be used only to settle transactions relating to the client's security accounts in one or more CSDs. This cash account structure will foster efficiency improvements for clients that use more than one CSD.

The T2S dedicated cash account(s) will be linked to the market participant's main cash account in TARGET2 or another non-euro central bank RTGS account. All transfers between the two accounts will be done on a real-time basis. T2S will therefore take the integrated model to a new level, not only directly connecting the securities accounts of one CSD with the cash accounts of one NCB, but connecting any securities account at any participating CSD with any cash account at any participating central bank. All changes in the balances of cash

and securities accounts, regardless of which CSD or NCB they belong to, can be made in real time. In this way, cross-border settlement will become identical to (and therefore as inexpensive as) domestic settlement.

Another crucial innovation of T2S is its multicurrency dimension. Originally, the idea was for T2S to be restricted on the cash side to the euro and on the securities side to only those held in the euro area CSDs. Nevertheless, the ECOFIN Council explicitly asked that T2S should not be limited to the Euro area. T2S will be able to settle almost all securities in Europe T2S may be able to settle almost all securities in Europe. In January 2010 the ECB Governing Council adopted the eligibility criteria for CSDs in TS2. In May 2010 the TS2 Programme Board approved an updated version of the General Functional Specifications

The main benefits of T2S are the following (Broese, 2010, p. 5): (i) T2S will bring technical consolidation to the European post-trade landscape by providing a single resilient, secure and efficient settlement platform. It will include a number of features designed to increase efficiency. Such integrated feature is the technical netting which will reduce the amount of securities needed for settlement. Therefore, T2S will contribute to the development of a single European market of financial services. (ii) Auto-collateralization will be included as an automatic process within T2S that will allow the exchange of securities eligible as collateral in return for the cash needed for settlement. (iii) T2S will provide completed harmonized services in the field of settlement instruction management. (iv) T2S will reduce direct processing costs through economies of scale and also through synergies with other Eurosystem services: with TARGET2 in terms of payments in euro and with Correspondent Central Banking Model 2 (CCBM2) in terms of collateral management as part of Eurosystem credit operations.

However, T2S will concentrate a concentration risk in securities settlement, which has to be mitigated. That's why the system will have business continuity and contingency models, exploiting the architecture and infrastructure already in place for TARGET2. Therefore, the Eurosystem (ECB, 2008, p. 125) will continue to operate even after a variety of unpredictable events ranging from local equipment failures to regional disasters.

T2S is scheduled to go live in September 2014. T2S is not only platform for settlement in euro. It can also be used to settle transactions in other currencies. That's why in 2010 Currency Participation Agreements were started to be negotiated with those non-euro area NCBs that have envisaged allowing their currency to be settled in T2S.[2]

3.4. Single European Payments Area (SEPA)

Following the cash changeover to the euro in 2002, SEPA was intended to enable European citizens to make payments to beneficiaries anywhere in the euro area using a single bank account and a set of harmonized payment instruments. Low-value euro payments, however, have been handled and processed in many different ways in Europe. As a result, fees for making cross-border payments within the EU have been very high when compared with those for domestic payments. The establishment of the large-value central bank payment system TARGET and that of its successor – TARGET2 was also of great importance for the movement towards a more integrated European financial market.

Official start of SEPA was given in 2002 with the establishment of the European Payments Council (EPC). The EPC has designed the rules and practices for the new payment schemes and selected the standards to be applied. During the first, design phase (January 2004 – June 2006) the design of the new credit transfer and direct debit schemes and the frameworks for cards and clearing and settlement infrastructures were established. The

[2] Such central banks are Danmarks Nationalbank, Norges Bank and Sveriges Riksbank.

necessary standards were developed and security requirements were also specified. During the implementation phase (June 2006 – January 2008) banks created and tested the new SEPA products that need to offer to their customers. Each participating country set up national implementation and migration bodies which prepared the roll-out of the new SEPA instruments, standards and infrastructures. The European Commission created the legal basis in the form of the Payment Services Directive (PSD) adopted by the European Parliament and the EU Council in 2007. During the migration phase (January 2008 - today) both providers and users of payment services are needed to move to SEPA. Banks, payment institutions, clearing and settlement infrastructures, card processors and card schemes need to adapt their products and services, and users need to adopt them. The ECB and the Commission have the role of project promotion, while the EPC is responsible for design and implementation. During the migration phase national payment scheme coexist with the new SEPA schemes. Customers have the opportunity to use both "old" national and new SEPA instruments. The clearing and settlement infrastructures are able to process payments made using both types of instrument. According to the ECB (2009e, p. 14), the goal is to achieve a gradual migration to SEPA, with a critical mass of transactions migrating by end-2010. After the migration period, services for sending and receiving euro payments which are based on the current domestic credit transfer and direct debit schemes (or equivalent schemes) will no longer be available to customers.

As BIS (2003, p. 84) points out, credit transfers are the most widely used means of non-cash payment in the euro area, followed by direct debits, as these means of payment offer the most convenience to their users. Also a steadily increase in card-based payments is observed, with debit cards being preferred to credit cards in most countries. The importance of direct debits in the euro area has significantly grown in recent years because of an increased tendency for utility and retail companies to offer this service.

The ECB (2009e, p. 7) defines SEPA as "*an area in which consumers, companies and other economic actors will be able to make and receive payments in euro, whether within or across national borders, with the same basic conditions, rights and obligations, regardless of their location*". Therefore, in the SEPA framework, all retail payments in euro are treated as "domestic"; the distinction between domestic and cross-border payments within the euro area is eliminated. The aim of SEPA is to strengthen European integration by establishing a single market for retail payments, and thus by increasing the competition and innovation to bring better services for customers.

The basic elements of SEPA are: *harmonized payment instruments (credit transfers, direct debits and payment cards), European infrastructures for handling euro payments, and harmonized legal framework and common operating standards and practices.* SEPA payment instruments consist of SEPA credit transfer and SEPA debit transfer, as well SEPA card framework. The aim of SEPA is to gradually replace all existing national payment instruments with these common SEPA schemes.

In line with the PSD, a credit transfer scheme is a set of functions, procedures, arrangements, rules and instruments either paper-based or electronic, that enables the execution of a payment order given by the payer (originator) to the PSP for the purpose of placing funds at the disposal of the beneficiary (the payee). The transfer of funds is executed by debiting and crediting accounts, regardless of the way the payer provides the funds (the payer may hold an account or provide the funds in cash). Direct debit scheme is regarded as a set of functions, procedures, arrangements, rules and devices that enable the authorized debiting of the payer's payment account, initiated by the payee either as a single payment or a series of payments. The key features of SEPA credit and debit transfer schemes, as well as of SEPA card payment scheme, are given at Table 3.

SEPA credit transfer (SCT) and SEPA card payment schemes were launched in January 2008, while SEPA direct debit transfer (SDD) scheme was launched in November 2009. At present, 4,468 banks are members of the SCT scheme, while 2,814 banks have now adhered to SDD scheme.

Table 3

SEPA Credit Transfer Scheme	SEPA Debit Transfer Scheme	SEPA Card Payment Scheme
There is SEPA-wide reachability – any customer can be reached.	It offers full SEPA-wide reach – direct debits can be made to any recipient.	Cardholders will be able to pay with one card all over the euro area (limited only by brand acceptance on the part of merchants).
The full amount is credited to the beneficiary's account; there is no limit on the value of the payment.	It covers both recurrent and one-off payments in euro.	Cardholders and merchants will be able to make and receive card payments throughout the euro area in a common and consistent manner.
The maximum settlement time is three business days.	The required transaction time is five business days for a one-off payment or the first in a series of recurring payments, and two business days for subsequent recurring payments.	Payment card processors will be able to compete with each other and offer their services throughout the euro area, making the market for the processing of card payments more competitive, reliable and cost-efficient.
The scheme is separated from the processing infrastructure.	The scheme is separated from the processing infrastructure.	
Both IBANs and BICs are used as account identifiers.	Both IBANs and BICs are used as account identifiers.	
There is a comprehensive set of rules for rejected and returned payments.	It ensures a comprehensive set of rules for rejected and returned payments.	
	A business-to-business direct debit scheme has also been developed. This is based on the core direct debit scheme, with specific additional features for use in business-to-business transactions.	

Source: ECB.

SEPA instruments and infrastructures provide many customer benefits in terms of functionality, cost efficiency and ease of use. It also allows participants to meet their own mutually beneficial needs in terms of service and innovation for customers.

In particular, the business benefits of SEPA could be distinguished for originators and beneficiaries, banks and providers of clearing and settlement mechanisms (CSMs). In particular, the benefits for payers and beneficiaries as users of the SCT are the following (EPC, 2009a, p. 12): (i) payments are made for the full original amount; (ii) the originator and beneficiary are responsible for their own charges; (iii) full reachability of all beneficiary accounts within SEPA; (iv) products based on the SCT provide the opportunity to make and receive payments throughout SEPA; (v) maximum execution time with the benefit of predictability for all parties; (vi) the use of accepted standards and data elements facilitates payment initiation and reconciliation; (vi) rejects and returns are handled in a predictable way and may be automated; (vii) the scheme delivers the end-to-end carrying of customer remittance data on either a structured and unstructured basis; (viii) the scheme provides transparency and clarity of charging to all parties; (ix) single payments and bulk payments (i.e. one debit to the originator's account and multiple credits to the accounts of beneficiaries) are supported.

For banks SCT provides the following benefits: (i) efficient and effective end-to-end processing of credit transfers using open and common standards; (ii) reachability across SEPA; (iii) enabling a single process across SEPA including rejects and returns; (iii) participants can choose the most efficient and cost-effective routing of transactions; (iv) establishment of agreed processing cycles; (v) sound scheme governance and legal structure; (vi) ability to offer additional optional services; (vii) satisfies the expectations of stakeholders. SEPA also provides separation of SCT and SDD from infrastructure that allows operation of the schemes by multiple clearing and settlement providers.

The most important business benefits offered by the SDD scheme for creditors are the following (EPC, 2009b, p. 12): (i) a simple and cost-efficient way to collect funds; (ii) ability to determine the exact date of collection; (iii) certainty of payment completion within a pre-determined time-cycle; (iv) opportunity to optimize cash flows and treasury management; (v) straightforward reconciliation of received payments; (vi) one payment instrument throughout SEPA for creditors holding a bank account in SEPA; (vii) opportunity to collect funds from debtors by the use of a single payment instrument; (viii) reduction of administrative costs and enhancement of security due to the optional use of digital signatures, once electronic signatures become available. For debtors the SDD scheme offer: (i) a simple means of paying bills, without the risk of late payment and its consequences; (ii) the debtor is easily reachable for SEPA-wide business offers since the scheme is a single, trusted payment service for all creditors in SEPA; (ii) straightforward reconciliation of debits on account statements; (iii) possibility to sign a mandate on paper or in a fully-electronic way once electronic signatures become available. (iv) fast and simple refund procedure available within 8 weeks of the debit date.

The most important advantages offered by the SDD to its participants are such as follows: (i) processes are highly automated and cost-effective, with end-to-end dematerialisation; (ii) the processing cycle is clear, transparent and reliable; (iii) SDD enables proper management of liabilities and risks; (iv) risk mitigation in inter-bank settlement and at inter-bank level in general; (v) the scheme enables the achievement of full STP of all transactions, including, with clear reference to the original transaction, rejects, returns, refunds and reversals; (vi) SDD is intended to create conditions which will allow each participant to build products that can generate reasonable economic returns sufficient to ensure the safety, security, and risk integrity of the scheme; (vii) ease of implementation; (viii) use of open standards such as BIC and European IBAN as bank and account identifiers; (ix) uambiguous identification of all SEPA direct debit creditors; (x) application of a set of harmonized rules and standards.

Empirical analysis of SEPA performance demonstrates a steadily increase of the transactions processed in SEPA format. The share of SEPA credit transfers in the interbank domain as a percentage of the total volume of credit transfers (i.e. credit transfers in the “old” as well as in SEPA format) started from 0.5% in February 2008 and increased up to 7.5% in April 2010. The value of the SCT indicator increased significantly in March 2009 due to the start of operation of a new system in Slovenia – most of the traffic has already migrated to SCT. The higher value of the indicator means higher usage of the newly introduced SEPA product. A figure of 100% would indicate that only SEPA products are used and have fully replaced the non-SEPA instruments.

As concerns the direct debits transactions, they are offered by a large number of banks from all over SEPA. However, the share of SEPA direct debits in the interbank market as a percentage of the total volume of direct debits (i.e. direct debits in the “old” as well as in the SEPA format), is relatively small (around 0.04 - 0.05%). The higher the value of the indicator, the higher the usage of the newly introduced SEPA product. As of November 2010 at the latest, euro area banks have to ensure reachability of their customers’ accounts for SDD

transactions, if they are reachable for a national direct debit transaction denominated in euro (required by the Regulation 924/2009 on cross-border payments in the Community). The same applies for banks in non-euro area countries at the latest in 2014.

Table 4

Credit transfer transactions processed in SEPA format as a % of total transactions (in euro area)*								
02.2008	03.2008	04.2008	05.2008	06.2008	07.2008	08.2008	09.2008	10.2008
0.5%	0.6%	0.9%	1.0%	1.1%	1.1%	1.2%	1.4%	1.5%
11.2008	12.2008	01.2009	02.2009	03.2009	04.2009	05.2009	06.2009	07.2009
1.7%	1.8%	1.8%	1.9%	2.0%	2.9%	3.1%	3.9%	4.2%
08.2009	09.2009	10.2009	11.2009	12.2009	01.2010	02.2010	03.2010	04.2010
4.4%	4.5%	4.6%	4.8%	5.3%	6.2%	6.2%	6.7%	7.5%

* Aggregated data from the following clearing and settlement infrasructures/systems located in the euro area: CEC, RPS, Dias, Iberpay, SIT/CORE, BI-COMP, JCCTransfer, Equens, Step.at, SIBS, Bankart, GiroClearing and STEP2. Source: EPM.

Table 5

Direct debit transactions processed in SEPA format as a % of total transactions (in euro area)*					
11.2009	12.2009	01.2010	02.2010	03.2010	04.2010
0.04%	0.04%	0.04%	0.04%	0.04%	0.05%

* Aggregated data from the following clearing and settlement infrastructures/systems located in the euro area: CEC, RPS, Dias, Iberpay, CORE, ICBPI/BI-COMP, Equens, Step.at, SIBS, Bankart, Euro SIPS and STEP2. Source: EPM.

The key elements of SEPA (payment instruments, standards and legal basis) are the building pillars on which further, innovative services can evolve. Some participants, for example the ones with significant numbers of daily payment transactions, are used to making payments in a highly developed electronic environment. SEPA products must advance to mirror their needs. At the same time, innovation should not lead to new fragmentation: new solutions should be offered not only in the national context but throughout Europe, with the same user experience and high service level.

The long-term goal of SEPA is to create a dynamic retail payment market that makes the best use of available technologies, so that best practice and high user acceptance can evolve for all economic situations in which payments are made.

4. Oversight function in the field of payment and securities settlement systems

The Eurosystem places a greater importance on adapting its role in the light of the evolution of the market infrastructures, i.e. payment, clearing and settlement infrastructures. This is directly relevant to the effective fulfilment of the Eurosystem's responsibilities for the conduct of monetary policy, the smooth operation of payment systems and the safeguarding of financial stability. The main objective of the oversight function of financial markets infrastructures is to prevent both disturbances in the infrastructures and the spillover of disturbances into the financial system and the economy as a whole.

The Eurosystem applies different types of oversight standards to payment systems, depending primarily on the extent of their relevance for overall financial stability. For example, for the systemically important payment systems (SIPSs) such as TARGET2, the Eurosystem applies the Core Principles for Systemically Important Systems, with a customised assessment methodology. These principles give guidance for the design and operations of the SIPSs, including the requirements for a sound legal basis, adequate management of financial risks, security and operational reliability, efficiency and governance.

A comprehensive assessment of TARGET2 was initiated by the ECB in 2006. The ECB acts as an overseer in a close cooperation with the overseers from the NCBs. The latter remain responsible for the conduct of the oversight of the local features of TARGET2 and contribute to the oversight of the SSP on a voluntary basis. In May 2008 the ECB assessed ex ante the compliance of SIPSs with the applicable oversight standards and concluded that the liquidity mechanisms of the systems were very useful and their operation was successful.

Having in mind that the retail payment systems are used for the bulk of payments between individuals, companies and public administrations, and their safety and efficiency correspondingly play an important role in the smooth functioning of the financial system, in 2003 the Eurosystem defined its "Oversight standards for euro retail payment systems". The euro retail payment systems should comply with this set of standards, depending on their systemic relevance. In 2006 the Eurosystem started the initiative "Business continuity oversight expectations for systemically important payment systems" with regard to give guidance to SIPS operators on measures to achieve adequate levels of resilience, focusing on business continuity strategy, planning, testing, and crisis management. The Eurosystem has also developed approach and a minimum set of common oversight standards for payment instruments. The aim of these standards is to create a common ground for all payment instrument frameworks, particularly in the context of SEPA that have significantly changed the retail payment landscape.

As concerns the international oversight cooperation, a number of cross-border or multi-currency systems cooperative oversight arrangements are in place, such as the systems CLS, Euroclear, LCH.Clearnet SA and SWIFT. Memorandum of Understanding (MoU) between the overseers and the securities regulators of the Euroclear group countries was signed in 2005. In 2009 it was extended to the Swedish and Finnish authorities. In 2005 MoU was signed between the authorities of the four countries responsible for overseeing LCH.Clearnet SA and their British counterparts. SWIFT has acquired potential systemic relevance owing to the strong reliance of many systemically important market infrastructures on SWIFT and its central infrastructure role in correspondent banking messaging flows. The G10 central banks and the ECB compose the SWIFT Cooperative Oversight Group.

Discussion questions

1. What are the major trends of the TARGET system operation and what is the impact of the TARGET2 system establishment?
2. What are the main benefits of the LVPSs for customers and banks in comparison with the retail payment systems?
3. What are the key features of the T2S system and what are their implications for the CSDs?
4. Which euro area payment markets are better integrated – retail or wholesale markets and are the reasons staying behind this trend?
5. What is the progress achieved in the euro area in establishing harmonized payment instruments – credit transfers, direct debits and payment cards?
6. What are the main challenges facing the integration process of the European financial market that are still needed to be overcome by the Eurosystem?

Epilogue

An important area for follow-up action to the global financial crisis is the strengthening of the global financial architecture, with a view to further enhancing the stability and the resilience of the global financial system. With regard to this, the Eurosystem has undertaken a series of initiatives to fostering the efficiency and security for all kinds of transfer of funds and securities in Europe. As the study demonstrates, the key innovations

consist of the TARGET2 introduction, SEPA establishment and migration towards the T2S system. These innovations will lead to a better understanding of the payment and settlement systems' behavior in stress situations and to enhance the stability of the euro area financial system. Moreover, the successful integration of the European payment and settlement infrastructures will further contribute to the integration of the European financial markets, as well as to their higher competitiveness.

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