



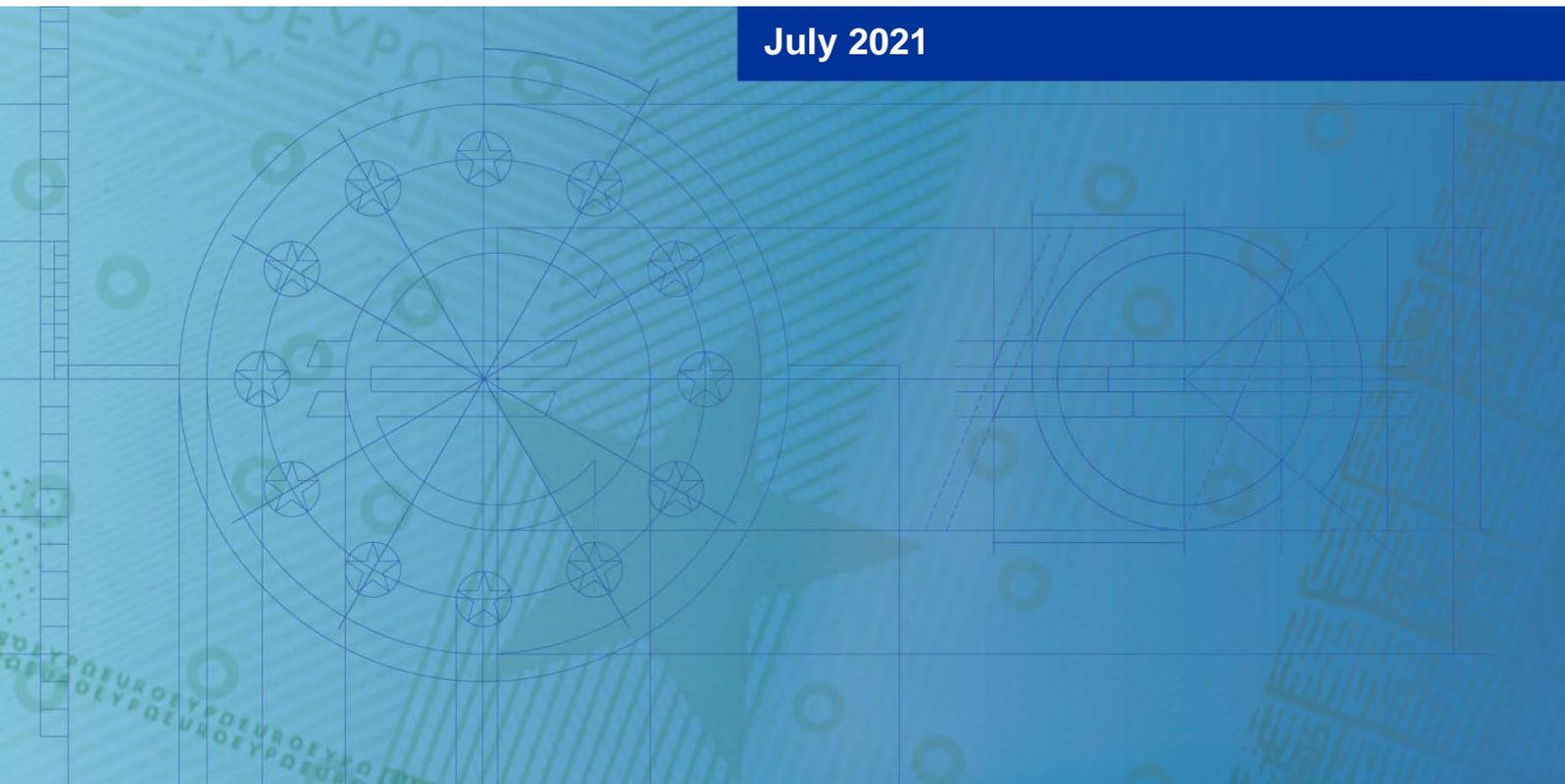
EUROPEAN CENTRAL BANK

EUROSYSTEM

# Payments and market infrastructure two decades after the start of the European Central Bank

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# Foreword



This book is being published at a very good point in time.

Two decades after the start of the ECB we can assess the work conducted in the euro area to build an efficient payment infrastructure and draw lessons from the experience of these years.

At the same time, the advent of digitalisation is radically transforming the European payment landscape.

On the retail front, current technology and advanced business solutions make payments possible at almost any time and place. New digital payment instruments, including privately issued “stablecoins” as well as central bank digital currencies, are emerging. The ECB is among the top global central banks conducting analyses on the possible introduction of a digital currency.

Large-value payments are also evolving rapidly. In addition to the move to real-time settlement in almost every country worldwide, the range of entities participating in the payments value chain has expanded beyond banks to include financial market infrastructures (FMIs), other financial and non-financial companies and, more recently, fintechs and big techs.

The increased prominence of technological companies in payments is shaping market dynamics and user demand. Application programming interfaces that allow different applications to communicate with each other and cloud computing services which allow on-demand scalability help address these changing needs.

The complexity of today’s payment services and systems requires the utmost attention to guarantee high levels of reliability, availability and security. This creates some crucial challenges regarding the future evolution of payments.

A first challenge arising from the accelerated digitalisation relates to cyber incidents, which are becoming a major source of risk for the financial system in general and payments in particular. The more payments rely on digital processes – thereby minimising human intervention, and physical data checks and storage – the larger the volume of data held by service providers will be, and the greater the challenges relating to their maintenance, storage and, in the event of disruptions, restoration. Improving cyber resilience is therefore essential in order to alleviate these risks.

A second emerging challenge is how to preserve financial stability through risk-proportionate regulation, oversight and supervision. In particular, in order to guarantee the stability of the financial sector, public authorities must avoid the digitalisation of payments increasing the risk of runs. This will require, for example, an appropriate design of the new instruments – including those issued by public authorities – or the imposition of adequate accountability or liquidity standards on private providers.

New issues are emerging. Not only does the expansion of new unregulated non-bank intermediaries challenge entity-based frameworks but also new technologies make it possible for the decision-making of certain FMI functions to be unanchored from any (easily identifiable) physical or legal person, thereby muddling FMI governance. This could be the case, for example, of solely software driven (decentralised) FMI functions.

A further challenge is how to reconcile user demand for convenience and seamless integration among different services – which global players offer thanks to their control of social media, online marketplaces and mobile technologies – with the objectives of ensuring a contestable and competitive market for all intermediaries (big and small) and protecting consumers.

We need to continue our efforts towards the development of truly European retail payment solutions, inducing suppliers of payment services – both banks and non-bank intermediaries – to adopt increasingly common technical standards with a pan-European reach.

Overall, digitalisation is introducing not only benefits but also formidable complexities. In addressing these new challenges, central banks and other relevant public authorities can rely on their experience and their knowledge of monetary and financial markets, and payment systems. The old Latins said “*Historia est Magistra Vitae*” (starting with Cicero in his *De Oratore*) to convey the idea that the study of the past should serve as a lesson for the future.

A thorough analysis of past experience is therefore the necessary starting point for any reflection. And this is precisely what this book does.

Fabio Panetta

Member of the Executive Board of the European Central Bank

# Acknowledgements

This book is the product of considerable efforts, involving invaluable contributions by a large number of people: former and present European Central Bank (ECB) colleagues and Board members, colleagues from the Eurosystem, the European Commission, the European Banking Authority (EBA), the European Securities Market Authority (ESMA), the Bank of England, the Federal Reserve and the Bank for International Settlements (BIS), and a number of academics and representatives of the private sector who played an important role over the past 20 years.

I would like to acknowledge and thank all the book's authors<sup>1</sup>, who have managed to deliver their contributions despite the coronavirus (COVID-19) crisis and their heavy workloads. Special thanks go to: Mario Nava, who co-ordinated the contributions on the European Commission's initiatives; Fabrizio Planta, who co-ordinated the contributions on the ESMA initiatives; my colleagues, Elin Amundsen and Antonia Hamova, for their important suggestions on design aspects, and Chantal Brion, who has taken care of the editorial aspects.

I would also like to express my deep gratitude to my colleague Fiona van Echelpoel for her continued support and encouragement; she has helped me throughout the preparation of the book and always provided very useful insights.

Daniela Russo

Frankfurt am Main, July 2021

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<sup>1</sup> The views and recollections presented in this book are the sole responsibility of the authors and do not necessarily represent the views of the ECB, the Eurosystem, the European Commission, ESMA or any of the other institutions with which the authors are associated.

# Introduction

Prepared by Daniela Russo<sup>2</sup>

According to the Treaty on European Union the primary objective of the European Central Bank (ECB) is to maintain price stability. In addition, the Treaty assigns four basic tasks to the ECB: to define and implement the monetary policy for the euro; to conduct foreign exchange operations; to hold and manage the official reserves of the Member States, and – of particular relevance to this book – to promote the smooth operation of payment systems.

Within this framework, the main objectives of the ECB in terms of payment systems are: to maintain systemic stability; to promote efficiency; to maintain public confidence in payment systems, payment instruments and the currency; and, last but not least, to safeguard the transmission of monetary policy.

**The purpose of this book** is to show how the current payments and market infrastructures for the euro and their oversight framework have been created and developed over the past 20 years in order to achieve these objectives.

A look back at the past is a helpful tool to provide an indication of just how much can happen within a few years. This is true if we look for instance at the size of the European Union (EU) and the different currencies that existed 20 years ago. Since then, there have been substantial changes in terms of technological development. Just think how few people were using mobile phones, email or the World Wide Web in 1999. Remember, too, how limited their functions were and how complicated it was to use these new technologies back then, compared with today's vast range of convenient and more secure electronic services. The considerable progress made is especially visible in today's payments industry and in financial services generally. Developments in the area were triggered by powerful new technologies, the ongoing financial integration in Europe and the financial stability concerns that emerged after the financial crisis. This little retrospective demonstrates how a "leap in time" of a few years may offer a different perspective on the substance and quality of ongoing change – fundamental change, which we hardly even notice if we only look at the current situation. The book uses the same technique as a forward-looking "leap in time" to assess the impact of the ECB/Eurosystem's work on today's payments landscape.

The book takes a historical perspective and focuses on how the different objectives have been achieved over time. It does not therefore aim to provide comprehensive descriptions of the current situation and measures, nor do the initiatives referred to in this book provide a comprehensive picture of all the actions taken in those years. The book concentrates on the actions of the ECB/Eurosystem, the European Commission and the European Securities and Markets Authority (ESMA). The idea

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<sup>2</sup> Daniela Russo is Adviser to the Executive Board of the ECB. She was Deputy Director General and Director General of the ECB's Directorate General Market Infrastructure and Payments from 2005 to 2014.

is to show the long and winding road that led to the design and implementation of the various initiatives, including the main drivers and challenges, and to focus on some selected key elements and actions. Accordingly, while the book looks at things from a public authorities' perspective, on certain occasions it also considers the position of some market stakeholders who played a major role (e.g. the European Payments Council and the European Central Securities Depositories Association).

It is worth noting that the main regulatory initiatives concerning financial integration were implemented in the decade 1998-2008, with a view to dismantling barriers to the integration of EU financial market infrastructure. In fact, since the 2008 crisis, the focus of interventions of authorities and market participants has shifted from financial integration to financial stability, with a view to reflecting the lessons of the crisis and increasing the resilience of FMIs.

Table 1 compares the payments landscape at the beginning and at the end of the 20-year period 1999 to 2019. The table also includes a few developments that were in progress at the end of 2019, which were either formally finalised in 2020 or are still in progress and expected to be finalised in 2021 - 2023.

**Table 1**

Comparison of the payments and market infrastructure landscape in 1999 and 2019

	1999	2019
<b>The ECB/Eurosystem as operator</b>		
Large-value payment systems	TARGET	TARGET 2
Retail payment systems	Domestic ACHs	TIPS
Securities settlement systems	Central bank CSDs	T2S
Central bank collateral management	CCBM	ECMS (2023)
<b>The ECB/Eurosystem as catalyst</b>		
Retail payment systems/instruments		SEPA
Securities settlement		T2S harmonisation
Post-trading systems		Code of conduct, CESAME
<b>The ECB/Eurosystem as overseer</b>		
Oversight framework for payments and payment systems <sup>3</sup>	Art. 22 ESCB Statute	Eurosystem SIPS regulation, Eurosystem oversight frameworks
CSD/SSS oversight	Eurosystem user standards	CSDR
CCP oversight		EMIR, EMIR2 Regulation on Recovery and Resolution ESMA CCP Supervisory Committee (2020)
All FMIs		Eurosystem oversight framework Eurosystem cyber resilience strategy

<sup>3</sup> A comprehensive list of ECB/Eurosystem publications concerning the Eurosystem oversight framework is provided in Parts 4 and 5 of this book and in the Bibliography.

As Table 1 shows, **the major Eurosystem achievements have been:**

- as operator: TARGET2 (T2), TARGET2-Securities (T2S), TARGET Instant Payment Settlement (TIPS) and the forthcoming Eurosystem Collateral Management System (ECMS);
- as overseer: a Eurosystem oversight framework (including a cyber resilience strategy) and a clear role as central bank of issue within the comprehensive EU regulatory framework provided by the European Commission and ESMA, as well as the establishment of the ESMA CCP Supervisory Committee;
- as catalyst: the Single Euro Payments Area (SEPA), and progress towards integration of post-trading infrastructures.

In addition to these achievements, some lessons can be drawn from the experiences of the last two decades. I would highlight just four of them.

The first lesson is the importance of **appropriate governance mechanisms** supporting new processes and procedures within the Eurosystem. These range from appropriate decision-making mechanisms to effective tools and processes to address potential conflicts of interest, and include the transparent and efficient allocation of tasks between the central banks. The governance model established for TARGET2 helped a lot in facilitating the agreement for building other Eurosystem infrastructure.

Appropriate **governance** has also been important for private sector initiatives. Both SEPA and the European Commission's post-trading initiatives proved how important appropriate governance is to ensuring cooperation among entities in competition with one another.

In particular, **appropriate incentives** are a key component of the process in order to achieve the public policy objectives which are linked to the good functioning of FMIs. Positive incentives are important in processes where costs are borne immediately, while benefits can be reaped only in the medium to long term. Negative incentives are important in network industries where the benefits are a function of the participation of all relevant entities and when it is not obvious that first movers are those who will benefit most.

The second lesson concerns the need for **more cooperation among overseers/supervisors** and for **a common set of rules** at domestic level. Here again, experience shows that focusing on the cross-border business dimension alone is not sufficient to achieve really integrated solutions; this should be coupled with harmonised domestic rules and true and deeper cooperation among the relevant domestic overseers/supervisors, in line with a common discipline. This has been experienced both in the field of post-trading and in the case of retail payments.

The third lesson is about the need **for timely and effective implementation**. Agreeing on a set of common rules seems to be a “piece of cake” compared with ensuring the timely and consistent implementation of the decision. On the one hand, inconsistent implementation cancels out the benefits of having a common set of rules

and procedures; on the other hand, excessive delays in implementation may lead to a situation where the technical solutions are only implemented when they are already obsolete: this was the case with the SWIFT protocol (ISO 15022), which was still under implementation when the new protocol ISO 20022 was identified.

The last lesson is about the need for clear **communication (including clear, agreed and commonly understood terminology) and transparency of the rules (including price transparency)**. As indicated in Ms Tumpel-Gugerell's contribution, misleading communication has been one of the main obstacles to SEPA's prompt implementation.

**This book comprises** an introductory section, seven parts describing the different initiatives undertaken in the last 20 years under the aegis of the ECB/Eurosystem, the European Commission and ESMA and a final part on the challenges ahead. The book also provides timelines highlighting the main milestones of the different areas of action.

The introductory section sets the scene and provides some insights into the work conducted in the global context, within the framework of the Committee on Payments and Market Infrastructure (CPMI) of the G10 central banks<sup>4</sup>. It also pays tribute to two of the most important architects of modern payment systems: Tommaso Padoa-Schioppa and Alberto Giovannini, who unfortunately are no longer with us, and are very much missed and never forgotten.

Part 1 is about the work conducted by the Eurosystem as operator: from TARGET through TARGET2 to the most recent TARGET2-Securities (T2S) and TARGET Instant Payment Settlement (TIPS) and the forthcoming Eurosystem Collateral Management System (ECMS).

Part 2 and Part 3 describe the initiatives in the field of financial integration. While the main focus of Part 2 is retail payments and in particular the establishment of the Single Euro Payment Area (SEPA), Part 3 focuses on the work of the European Commission in the area of post-trade systems, starting with the Giovannini reports.

Part 4 to Part 7 cover oversight. Part 4 provides a general introduction and the subsequent three parts focus respectively on oversight of payments and payment infrastructures (Part 5), securities settlement systems (Part 6) and central counterparties (Part 7).

The final Part 8 looks at some of the main challenges ahead in the area of payments (digital currencies and cross-border payments), challenges for central counterparties (CCPs) and for oversight, and those challenges coming from the broader issues of climate change and financial inclusion.

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<sup>4</sup> In 2009, the Committee started reporting to the Governors of the Global Economy Meeting (GEM) instead of the Governors of the G-10 countries.

# Tommaso Padoa-Schioppa, a 21st century renaissance man

Prepared by Daniela Russo and Ignacio Terol<sup>1</sup>

## 1 Introduction

To paraphrase Mark Twain, one of the best things Adam and Eve had in the Garden of Eden was that when they said a good thing, they knew that nobody had said it before. On the contrary, the challenge for us now is that we know that by writing about Tommaso Padoa-Schioppa, ten years after he left us, we will not only produce just one of the many tributes to his unsparing dedication to public service but also run the serious risk of repeating something that (more than) one person has already said (and probably better).

Tommaso was one of the “architects of the euro” and helped to drive forward the financial, monetary, and economic integration of Europe; a man who knew the importance of the institutions as well as their limits, and who was always able to provide key inputs at critical junctures.

Nevertheless, we would like to take up the challenge: for important people or situations “repetita iuvant” (it could be helpful to repeat) and of course history also repeats itself. More importantly, for us (as for many others in Banca d’Italia, the Italian Companies and Exchange Commission (CONSOB) and the European Central Bank (ECB)) Tommaso was more than a colleague or a boss: he was and, to some extent, still is our mentor. You could always count on his guidance or advice, his ability to anticipate and find concrete solutions to problems and his sense of humour to address, take the drama out of or lighten difficult situations. Conversation with him was always enlightening: you benefited from having your ideas challenged, your reasoning sharpened, and saw your (minor and technical) issues in a broader and nobler context/vision and from many alternative perspectives. At the end of his mandate at the ECB he gave us a paperweight of Murano glass with “Aún aprendo” (“I’m still learning”), the title of one of Francisco Goya’s most famous drawings, written on it; and indeed we learnt a lot and are still learning from his example.

The advantage of writing this piece after so many distinguished people have already paid tribute to Tommaso, is that we can take advantage of what they have said (“if you can’t beat them, join them”) and try to add our own personal touch to it. Accordingly, we would like to use the approach that Fabrizio Saccomanni used at Tommaso’s leaving party at the ECB in Frankfurt in April 2005. Saccomanni suggested he “could explain Tommaso” to those who had only recently met him or

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<sup>1</sup> Daniela Russo is Adviser to the Executive Board of the ECB. She was Deputy Director General and Director General of the ECB’s Directorate General Market Infrastructure and Payments from 2005 to 2014. Ignacio Terol is an Adviser in the ECB’s Market Integration and Innovation Division.

knew him only superficially, highlighting three of his main features: the reformer, the motivator, and the communicator. In following this approach, we will refer in particular to the work Tommaso did in the area where the least has been written incidentally is also the area with which this book deals: payments and market infrastructure.

## 2 Tommaso as a reformer

It has been noted that if Tommaso had to choose between understanding the world and changing it, he would have clearly been on the side of change. For that reason, during his life, he was constantly fighting against the tyranny of the “status quo” and has consistently defended the principle that you do not need to be assigned formal specific statutory competence to start changing things but only to make a convincing case on the need for change. Then, “the function begets the organ” and lead to the establishment of the (missing) legal basis, if it is really needed.

It is difficult to summarise all the changes Tommaso introduced in the field of payment systems. It is worth stressing that Tommaso's legacy shows that he has been ahead of his time and, ten years after he passed away, events have stubbornly proved it.

Generally speaking, he can probably be considered to be the person, or certainly one of them, who turned payment systems from a specialistic issue for “plumbers” to a core central bank function. Over the course of his central banking career, Tommaso gradually developed a general paradigm of what he believed central banking involves. This paradigm is drawn from the evolution of modern central banks over the last 200 years. As the role of money – as a means of payment, a unit of account and a store of value – developed over time, what he called the “triadic function of central banking” also evolved. In his view, ensuring price stability refers to money as a unit of account and a store of value; operating and supervising the payment system refers to money as a means of payment; and pursuing the stability of banks refers to money as a means of payment and a store of value. He also once said that the relationship between the different functions is so close that one could consider paradoxically consider monetary policy as the dark side of payment systems.

Looking at his more specific achievements, we know that it will be impossible to be exhaustive and we will, therefore, mention only a few of his most significant accomplishments.

In Italy, he promoted the reform of payment systems between 1985 and 1991.

In the euro area/EU, he was behind the preparation and establishment of TARGET, TARGET2, the Single Euro Payments Area, the definition of and the framework for oversight, and the definition of the “catalyst” role in the euro area/EU.

The establishment of TARGET2 is a good example of how Tommaso, thanks to the conviction of his beliefs, his determination to get it through and his political

shrewdness was able to turn around an initially adverse result (that is something of the story of his life as central banker!).

For Tommaso, it was inconceivable that wholesale central bank money could take many forms in the euro area, but retail central bank money could take only one. Having been one of the architects of the euro, Tommaso was very conscious of its weaknesses. Had the centrifugal force of the financial crisis hit us ten years earlier with TARGET1, it may not have been possible to see clearly what was going on and it may have been an easier temptation to disconnect one RTGS from the rest. The significance of TARGET2 to the integrity of the euro cannot be understated.

The beauty of how Tommaso turned around the initially adverse result, lies in the acumen with which he did so. Step by step, the Governing Council agreed to a set of principles, forming a set of equations and variables. In the end, TARGET2 as we know it today turned out to be the only possible solution to the system of equations, once the three largest national central banks of the Eurosystem made a joint offer to develop and operate it.

TARGET2 also inaugurated a governance structure to conduct Eurosystem projects which has remained rather stable in its architecture since then. Setting the processes for the Eurosystem to achieve common goals was probably not Tommaso's priority, but it was a collateral benefit that is also part of his legacy.

Everything the ECB has done thereafter in terms of integration of payments, securities settlement and market infrastructures was built upon the TARGET2 decision. The Eurosystem could not have integrated anything if it had not integrated the provision of payments in central bank money first. T2S, TIPS or ECMS are good examples of this.

In the international, consensus-building work through his chairmanship of the CPSS (now CPMI) Tommaso also proved himself to be ahead of his time, in his work as CPSS (now CPMI) Chairman, being able to build an international consensus. It was the Greenspan era, with a large belief that "the market can do better; the central bank should only intervene if it can prove a market failure". In "The role of central bank money in payment systems", we established that "central banks would accept neither an outcome in which central bank money crowds out private initiative, nor an outcome in which central bank money is phased out by a market mechanism". In the early 2000s, big-tech was not in sight. Yet how frequently this report has been mentioned 15 years later in the central bank digital currency discussions is testimony to Tommaso's legacy. We can still hear him now when reading the current speeches of Governors/Board members of the leading central banks on the matter. Twenty years back, what role central bank money played in the monetary order was just a matter of history books. It was rare back then to get a Board member with both interest in payment matters and the curiosity to delve deeper into connecting it to the wider central bank functions and the monetary order.

Tommaso's CPSS chairmanship was also the time in which oversight became more formally established as a central bank function. Tommaso was always sceptical of that formalisation. Here, the overwhelming international consensus was to formalise

the oversight function, so Tommaso not only decided not to resist, but take also the opportunity of the first CPSS oversight report to define the concerns and the role of the “central bank of issue”. This proved very valuable later, when EU regulations, without necessarily referring to oversight, recognised a role for the central bank of issue. It also helped establish what the role of the ECB could be within the Eurosystem.

### 3 Tommaso as a motivator

In order to motivate his colleagues, especially the younger ones, Tommaso used a good combination of stick and carrot.

He insisted on the relevance of the project and the impact it could have on the institution’s policy decisions; he encouraged his younger colleagues to give their views with clarity and without false modesty. “I do not have a strong view; I can be convinced” he used to say (even when he had such a strong view that he had already reached the conclusions!). He asked you always to raise the bar of your objectives and aspirations.

He explained that “working well” does not depend on doing “important” things. In particular he was always mentioning as example of outstanding employees his driver and his first assistant (Ms Nardi). Moreover, he stressed that everything can be important if you look deep enough into it and find the good elements in it and extrapolate them, even “payment systems” (as he once said to Daniela, who was complaining that her assignment in the area of payment systems was a clear sign of gender discrimination!)

He was however terrible in requiring precision and punctuality, in identifying the weaknesses or inconsistencies in your reasoning and in always asking for something better. “A good first draft is only 70% of the job” he used to say. Working with him was very demanding but equally rewarding and none of us was ready to give up.

### 4 Tommaso as a communicator

Tommaso was described as having “a crystal-clear intellect” and no definition could better highlight his communication skills.

Tommaso’s output was huge and we will not try to summarise it. Instead we will try to elements of Tommaso’s recipe for effective communication.

The starting point is to have a consistent and systematic framework as a background and a common language. In this respect, among other things, he coined the word Eurosystem; asked the ECB Communication colleagues to produce a Eurosystem logo; and spent a lot of time and energy in the preparation of the Eurosystem institutional glossary.

Then, there is a need to work on the “clarity” of the text. He was always carefully reviewing his text and selecting any single word in order to ensure it was the most appropriate and clearest. His aim was to enable readers to easily grasp his arguments and proposals. There are three of Tommaso's sayings that can be considered as his golden rules for clear communication.

The first is, “technical or not, if something is clear in your brain you will be able to express it simply and clearly”. In particular, in the area of payments systems, this would allow you to be considered as the person who makes clear those hard to understand issues!

Second, “the form matters as much as the substance” (as the Italian philosopher Benedetto Croce said). This meant for him that ideas could be influential only if they are understood (and to be understood, they need to be clearly expressed and sometimes tailor-made to your audience).

Last, “clarity does not mean providing details”, i.e. clear focus on the two or three key aspects (maybe complemented by a number of well-chosen examples) is more important than the richness of details.

## 5 Conclusion: Tommaso, a novel Renaissance man

In history text books, the Renaissance man is defined as a person with genuine competence in and understanding of multiple fields, all of which complement one another to make him an extremely talented and productive person.

Tommaso was much more than the father of the central bank payment systems' function and doctrine; and he was more than an economist, central banker and policy maker. He had the sense of history, was a true European and was determined to raise European civilisation to a higher level. He was a person of broad-ranging talents and expertise, straddling both humanist and economic concerns.

He was a public servant in the broadest sense of the word. He liked to mention that when he joined Banca d'Italia, following Fabrizio Saccomanni's invitation, he left his previous job in the private sector (and the awful prospect of becoming a sweater manufacturer and salesman), just because he was convinced that serving a public technical institution (like the Banca d'Italia) was one of the two ways to serve the public interest (the other was becoming a politician).

Using the words of Alessandro Manzoni's famous ode *Il 5 maggio* (The Fifth of May) in honour of Napoleone Bonaparte, when remembering Tommaso, we think of a man to whom God “volle in lui del creator suo spirito, più vasta orma stampar” (“God wished the vision of his creative majesty most grandly traced in him”).

And as Ezra Pound wrote: “The renaissance is not an era but a temperament” and that is why we consider Tommaso to have been a novel Renaissance man of the modern era.

Ten years after his death, many staff members of the Eurosystem and even of other central banks may not be fully aware of how, what they do today may be connected to what was achieved back in Tommaso's day and thanks to him. On our side, we are extremely grateful for the opportunity we got to work with him directly, Nacho at the age of 26 (thank you, Daniela!) and Daniela at the age of 24 (thank you, Franco!). There can be no better "school" for a young central banker. With him, we shared an interest in understanding the significance of payment matters to the monetary order. From him, we learned the importance of strategy, tactics, preparation, bilateral contacts and humour to get the desired result from a meeting. Last, but not least, we learned the importance of intellectually challenging and encouraging the younger generations and discussing with them how to build a better world. If what you leave to younger people is a sign of greatness, then Tommaso was definitively one of the greatest men!

# Alberto Giovannini and the European Institutions

Prepared by John Berrigan, Mario Nava and Daniela Russo<sup>1</sup>

All three of us knew of Alberto Giovannini, before actually meeting him in person and experiencing his proverbially strong handshake. And, each of us remembers the exact day he or she met Alberto for the first time.

In 2000, the Commission gave Sean the seemingly intractable task of producing a blueprint for integrating the EU clearing and settlement markets by coordinating private sector action and without recourse to EU legislation. This was a time when clearing and settlement were seen as arcane – metaphorically subterranean – activities, almost entirely overlooked by the financial literature and by public policymaking. Few people in Europe, or in the world for that matter, knew much about clearing and settlement activities. Even fewer had a view on why and how clearing and settlement markets should be integrated at the EU level.

In seeking to deliver this blueprint, Sean turned to Alberto. He seemed just the man for the job. Alberto was barely in his 40s at the time, but his reputation as a powerful academic cum impressive public policymaker was already well established. Before reaching his 30s, an age when many renowned economists had not yet finished their PhD thesis, Alberto had already obtained his PhD from Columbia University. He had also helped the Italian government to rationalise the management of its burgeoning public debt – elevating modern public-debt management to an economic discipline in its own right. His earliest analytical work on European integration had already come in the 1980s and related to the creation of a single currency, based on a single monetary policy – a project that came to fruition with the launch of the euro in 1999. From then on, he focused his attention on EU financial markets, once again arguing convincingly for greater integration as a means to boost economic efficiency and reinforce financial stability.

Alberto had begun working with the European Commission in the late 1990s. He chaired a small group of private sector experts, who were responsible for advising the Commission on procedures for the redenomination of national government debt into euro. Alberto's stature as chairman meant that this group quickly became known as simply "the Giovannini Group". (though, as a quick aside here, since few non-Italians could pronounce his name correctly it was perhaps inevitable that the group would often be referred to as "the Giovanni group". Alberto was accustomed to such contortions of his name from his years at Columbia and just smiled silently, never taking offence.) Sean met Alberto for the first time, when he was appointed as

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Secretary to the Giovannini Group in 2000. They immediately began working together on two reports on the integration of EU clearing and settlement markets. What started as a professional relationship very quickly evolved into a strong personal friendship, forged through many long meetings, telephone calls and e-mail exchanges most often over weekends (when Alberto could spare the time from his day job!).

Daniela, who was then a Head of Division at the European Central Bank, was a very active member of the Giovannini Group. She had met Alberto for the first time at the European Monetary Institute in 1995, at the very beginning of her career at the ECB. The occasion was a closed workshop on repos. We should recall that this was an era when clearing and settlement was considered a “plumbing” issue for practitioners and a few central bankers who preferred to focus almost exclusively on payments. Alberto was prescient enough to realise that clearing and settlement activities would be fundamental in achieving effective capital market integration. Indeed, he warned Daniela’s boss “to be careful because the issues she is speaking about really do matter”.

Alberto steered the production of two Giovannini Group reports on clearing and settlement with his typical mixture of efficiency and panache. Meetings of the Group – which by now had expanded to well over one hundred participants – were a mixture of hard work and great fun. Over more than three years of meetings, the number of participants never dwindled and life-long friendships were born. The first report focused on identifying the barriers to EU integration of clearing and settlement markets, while the second report focused on how and by when to eliminate them. And, so the infamous 15 “Giovannini barriers” came into existence, many of which are unfortunately still being discussed today. Alberto used to complain jokingly that, despite his unstinting personal commitment to market integration, we had linked his name forever to seemingly immovable sources of market fragmentation!

Alberto was above all else an economic and financial analyst. He was a scientific man, who sought quantitative proof of his analysis and was never content if he could not support his arguments with precise numbers. A lot of time was spent – at his insistence – reviewing drafts of the two Giovannini Group reports to strengthen our case for removing barriers to integration. He was impatient to make progress. For example, he insisted on the distinction between those Giovannini barriers that would need 2 years to be removed and those that would need 2 years and 3 months, but not a day more! While he saw these as “ambitious but realistic” deadlines for removing the barriers, he was to see many of those deadlines fade into the past. Of course, he was disappointed at the slow pace of progress, but he remained pragmatic about what could and could not be achieved quickly in the complicated process of European integration. And, he never lost faith in the cause of European integration itself.

By the time the two Giovanni Group reports had been transmitted to the Commission in 2003, Sean was leaving the Group as Secretary, so Mario picked up the baton and assumed responsibility for implementing the two reports. Mario had an undergraduate degree from the same Alma Mater as Alberto (Bocconi University) where he had learned of Alberto Giovannini, the “brilliant student from Ferrara who

earned a PhD at Columbia and designed the Italian debt management procedure". After a few polite emails of introduction between Mario and Alberto, it was immediately down to work. Alberto insisted that Mario "take a plane to Milan so as to discuss face-to-face". Mario took the plane and spent an evening with Alberto in a tasty Pizzeria in the centre of Milan. Alberto chose the restaurant because it was the closest one to his office - not knowing that it was also the closest pizza to Mario's parental home! Much of what is described in this book - the Clearing and Settlement Advisory Monitoring Expert Group (CESAME), the Monitoring Group of the Code of Conduct on Clearing and Settlement (MOG), the idea of having a Directive and many others - were dreamt up and sketched out that night in the Pizzeria.

Alberto was a very gifted man. Physically, he cut an imposing figure. Intellectually, he had an enquiring, analytical mind and a seemingly effortless capacity to develop pragmatic solutions to complex policy challenges. He was optimistic and generous with his intellect. He was happy to share his many talents with those who cared enough for and showed enough dedication to, the cause. Sometimes, he could become impatient in meetings with colleagues, but never to the point of disrespecting them or their views. Once at the end of a long meeting, when everybody was exhausted, and after a not always helpful discussion, Alberto simply commented: "unhelpful discussions can also be helpful, if they 'legitimise' the process". He once paraphrased the Latin "semel in anno licet insanire", arguing that "Good governance, is governance that includes at least one meeting where everyone can speak all the nonsense that they want to speak!"

The three of us were very lucky – like many others – to witness Alberto's great talents up close. Alberto became a great friend to each of us - over dinners before CESAME meetings, during drinks after them and in the endless Saturday afternoon discussions, which became part of our life for several years. And, when one had the good fortune to work closely with Alberto, one realised that he was more than just physically imposing or intellectually powerful – he was a loyal friend and a thoroughly nice guy. Alberto would have been one of the first people, each of us would have called to get his view on how we should now proceed with Capital Markets Union (CMU), handle BREXIT, respond to the Covid-19 pandemic and many other issues.

This book argues that the "Giovannini barriers" have not yet all been completely dismantled, even if very clear progress has been made. It has not been an easy path, since every time an issue relating to a barrier was addressed a new one seemed to emerge. Alberto used to say that "it is an ugly copy of building the underground in Rome". Every time you dig and make progress, you need to break off because of new discoveries. The situation in EU clearing and settlement markets today, albeit not perfect, is vastly better than in 2000 – and it is better largely due to Alberto's work in helping to bring the "subterranean plumbing" of capital markets into clear view.

This is why Alberto was not only a great friend to the three of us and many of the readers of this book; but also a great friend to Europe. He was a true European – he will be genuinely missed, but never forgotten.

# Global cooperation

Prepared by Daniela Russo and Takeshi Shirakami<sup>1</sup>

## 1 The Committee on Payments and Market Infrastructures

### 1.1 Institutional background

The Committee on Payments and Market Infrastructures is the main body for global cooperation among central banks in the areas of payments and market infrastructures. It was set up by the Governors of the central banks of the Group of Ten (G10) countries under the name, “Group of Experts on Payment Systems”, in 1980, with the task of taking forward the work on payment system issues identified by the G10 Group of Computer Experts<sup>2</sup>. In 1989, this Group analysed interbank netting schemes for the first time, following the Report on netting schemes, published by the Bank for International Settlements (BIS) in 1989 and prepared by a group chaired by Wayne Angell.

As a follow-up to this report, an ad hoc Committee on Interbank Netting Schemes (chaired by Alexandre Lamfalussy, then General Manager of the BIS and later the founding president of the European Monetary Institute) studied in more detail the policy issues relating to cross-border and multicurrency interbank netting schemes. Its report, published in 1990: 1) provided a set of minimum standards for the operation of bilateral and multilateral cross-border and multicurrency netting schemes; 2) set out the G10 central banks' framework for the cooperative oversight of such systems; and 3) paved the way for the transformation of the Group of Experts on Payment Systems into the Committee on Payment and Settlement Systems (CPSS).

#### 1.1.1 Committee on Payment and Settlement Systems (CPSS)

The CPSS was set up as one of the permanent central bank committees reporting to the G10 Governors (the other main committees are the Basel Committee on Banking Supervision and the Committee on the Global Financial System). The CPSS's mandate was to serve as a forum for the central banks of the G10 countries to monitor and analyse developments in payment and settlement arrangements and to consider related policy issues. More than 20 years later, in September 2013, in the

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<sup>2</sup> One of the Group's first projects, a detailed review of payment system developments in the G10 countries, was published by the BIS in 1985 in the first of a series that has become known as the “Red Books”.

light of the Committee's standard-setting activities and the associated greater public scrutiny, the CPSS reviewed its mandate. The new mandate was approved by the Governors of the Global Economy Meeting (GEM), which also endorsed the renaming of the CPSS as the Committee on Payments and Market Infrastructures (CPMI). Both changes became effective as of 1 September 2014. These changes aligned the name and mandate of the Committee more closely with its actual activities.

The CPMI's primary task is to promote the safety and efficiency of payment, clearing, settlement and related arrangements, thereby supporting financial stability and the wider economy. Comprising senior officials from 25 central banks, the Committee monitors and analyses developments in these arrangements, both within and across jurisdictions. It also serves as a forum for central bank cooperation in related oversight, policy and operational matters, including the provision of central bank services. The CPMI is a global standard setter in this area. It aims to strengthen regulation, policy and practices worldwide.

## 1.2 Membership

First in 1997-98 and then in 2009, CPSS membership was enlarged to include 25 central banks. The ECB joined the CPSS in 1998. In order to reflect this enlarged membership, the committee started to report to the Governors of the GEM instead of the G10 Governors.

In March 2018, the membership of the CPMI was enlarged for the first time since 2009 to include three new central banks: the central banks of Argentina, Indonesia and Spain. The expansion aligned the membership better with the global regulatory framework and other standard setters. The Committee covers over 80% of the world economy and over 60% of its population; it now includes all Group of Twenty (G20) countries, and more than 40% of members are from emerging market economies. The expansion broadened the Committee's global footprint and gave it a wider range of experiences to draw on when deciding policy.

## 1.3 Main work

### 1.3.1 Early years: Creating foundational concepts for payments, clearing and settlements

In its early years, the CPSS's work focused on central bank efforts to reduce systemic risk in wholesale payment and settlement systems. It produced influential reports that set out foundational concepts, such as real-time gross settlement (RTGS), delivery versus payment (DvP), payment versus payment, shorter settlement cycles and the important role that central bank money plays in payment systems.

The CPMI's analytical work on these fundamental concepts was instrumental throughout the 1990s and beyond, as many central banks were moving their own wholesale payment systems toward real-time gross settlement (RTGS) and promoting delivery versus payment (DvP) and shorter securities settlement cycles. Its work on RTGS supplemented the work undertaken by the national central banks participating in the Economic and Monetary Union in the run-up to the introduction of the Eurosystem's TARGET in 1999.

The failure of Herstatt Bank in 1974 was a big wake-up call that FX settlement risk needed addressing, and it led to the CPSS carrying out a series of studies on cross-border payments. In 1996 the G10 central banks endorsed a CPSS strategy, which involved actions by individual banks to control their FX settlement exposures, actions by industry groups to provide risk-reducing multi-currency services and actions by central banks to induce rapid private sector progress. In response to this central bank strategy a group of major foreign exchange market participants set up the Continuous Linked Settlement (CLS) system, which went live in 2002.

In the mid-1990s, e-money and other innovations in retail payments started to gain importance in the payment landscape and to draw attention from central banks and other global policy makers. The CPSS contributed to stock-taking and analytical work, and policy discussion on e-money and other retail payments in CPSS jurisdictions. The CPSS published a series of reports on retail payments, covering clearing and settlement arrangement, and policy implications for central banks in retail payments.

### 1.3.2 Early 2000s: Standard-setting work (Level 1), Business Continuity and Interdependencies

In the late 1990s, in response to the Asian financial crisis and the growing importance of payment, clearing and settlement systems, the CPMI embarked on developing a set of international standards for these systems. This work led to the development of the 2001 CPMI Core principles for systemically important payment systems; the 2001 Recommendations for securities settlement systems developed by the Committee on Payment and Settlement Systems (CPSS) and the International Organization of Securities Commissions (IOSCO) (CPSS-IOSCO, 2001); and the 2004 CPSS-IOSCO Recommendations for central counterparties (See Section 2 for details). As the CPSS's role as an international standards body for payment, clearing and settlement systems gained significance, the CPMI also played a leading role in defining and solidifying the emerging concept of the central bank oversight function and promoted wider recognition of this important function.

Around 2000, the CPSS stepped up its work on enhancing operational resilience of payment, clearing and settlement systems, first in relation to the "Year 2000 problem" and then in the aftermath of 9/11.

As financial systems globalised further in 2000s, the network of domestic and cross-border systems also evolved significantly and became increasingly connected. In

response to this, the CPMI produced a series of analytical studies looking into interdependencies among systems and arrangements for mobilising cross-border collateral.

### 1.3.3 Late 2000s and early 2010s: Standard-setting work (Level 2) and digital innovations

In response to the Great Financial Crisis in 2007-08, the CPSS embarked on the holistic review of international standards, which culminated in the publication of the CPMI-IOSCO Principles for financial market infrastructures (PFMI) in April 2012 (see Section 2 for details). The CPSS and, subsequently, the CPMI have been facilitating the implementation of the PFMI since then by providing further guidance and monitoring the full, timely and consistent implementation of the PFMI across jurisdictions. As part of the broader work on the PFMI, the CPMI contributed to ensuring robust risk management and recovery planning of central counterparties, whose importance has increased as a result of the G20 OTC derivatives reform (e.g. the move toward central clearing of standardised OTC derivatives).

More recently, the CPMI has been addressing both opportunities and challenges arising from digital innovations, and has provided solid analysis on a range of related topics, including digital currencies, distributed ledger technology, stablecoins and wholesale digital tokens. Digital innovations also brought about new challenges, such as cyber-attacks and wholesale payments fraud, and the CPMI has been working on these issues.

Since the early 2000s, first the CPSS and then the CPMI, have worked together with the World Bank on a number of topics with a view to assisting the development of national payment systems, facilitating international remittances and financial inclusion. Currently, the CPMI is working on enhancing cross-border payments, which encompasses a wide range of policy and operational areas.

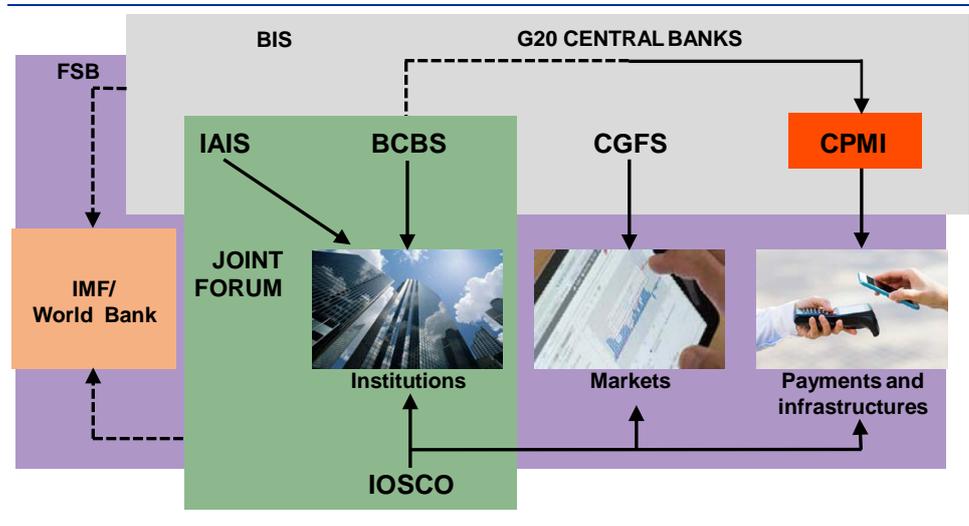
Throughout its history, the CPSS/CPMI has striven to be a reliable source of information and data regarding payments, clearing and settlement systems in CPMI and non-CPMI countries, through its publication of the Red Book, which is a sister publication of the ECB's Blue Book.

## 2 Interactions with other international bodies

The CPMI has not been working in isolation, but actively interacted with a number of other bodies sharing similar concerns but with different focuses. Figure 1 summarises the framework for global cooperation.

In the following paragraphs we focus on cooperation with IOSCO that, as already mentioned, has been the most important body in relation to the CPMI standard-setting role.

**Figure 1**  
Overview of global cooperation regulatory landscape



## 2.1 Institutional background

The rationale for cooperation between central banks, and securities and derivatives regulators, lies in the common concerns about the stability and soundness of the financial market infrastructures supporting the smooth functioning of the monetary and financial markets. In the decade following the stock market crash of 1987, CPSS/CPMI and IOSCO had been working independently on a number of issues concerning securities settlement. IOSCO conducted some work in response to private sector (G-30) recommendations and elaborated IOSCO Principles (focusing on market surveillance aspects) and CPSS/CPMI conducted some analytical work on DVP and lack of effective DVP mechanisms (different finality rules for payment and securities legs).

### 2.1.1 The Recommendations for Securities Settlement Systems (RSSS)

After the Asia Crisis of 1997 and the push for international standards as a response, CPSS and IOSCO decided to work jointly and established the first CPSS-IOSCO working group with a view to laying down the Recommendations for Securities Settlement Systems (RSSS). This group - co-chaired by Patrick Parkinson of the Board of the Federal Reserve and Giovanni Sabatini of CONSOB – included a wide number of central banks and securities regulators, as well as representatives from the IMF and the World Bank, with the status of observers. Secretariat was provided by CPSS and IOSCO. The Group also involved market participants and made use of extensive market consultations.

The RSSS represented the first comprehensive set of prudential recommendations for securities settlement systems (SSSs). Three main principles were adopted for the

preparation of the RSSS report. First, the report formulated not-legally binding “Recommendations”. This means that enforcement was based on the commitment of the SSSs and of their authorities for effective implementation. Second, the “recommendations” were considered minimum standards therefore applicable in all jurisdictions. There was an acknowledgement of the need for more developed markets and, in general, markets with higher risk profiles to develop more stringent standards, following the proportionality principle. Third, the report adopted a “functional approach”, recommending entities (e.g. custodians) presenting similar risks to SSSs (e.g. in the case of securities lending or custody risk) to adopt the same (or comparable) measures for their mitigation.

The RSSS report introduced 19 recommendations: some of them addressed the financial system as a whole, most of them related to Securities Settlement Systems (SSSs)/Central Securities Depositories (CSDs); and one was on relevant authorities’ responsibilities. In this connection, it introduced a distinction between pre-settlement and settlement risk. Pre-settlement risk encompasses a number of major risks that could materialise before the transactions are entered into the CSD/SSSs. The recommendations addressing pre-settlement risk then were referred to as “market” recommendations to stress the fact that their implementation did not depend on CSDs or SSSs but on the surrounding relevant financial market entities.

The RSSS recommendations, like the Core Principles for Systemically Important Payment Systems (CPSIPS), aimed at ensuring the safety and efficiency of SSSs. Most of the requirements were similar, though two important differences need to be mentioned. On the one hand, when discussing settlement assets, there has been less emphasis on the need to use central bank money as settlement asset, in order to acknowledge the fact that some participants of CSDs/SSSs are non-banks with securities accounts at the CSD but no cash account with the central bank. Accordingly, more attention has been paid to risk control and mitigation measures for settlement in commercial bank money. On the other hand, the increased relevance of operational risk led to enhanced requirements to control, mitigate and manage these risks.

Moreover, a number of “new” recommendations were introduced to take into account the specificities of the “securities” world, notably: a) dematerialisation/immobilisation in CSDs; b) securities (leg) settlement and securities lending; c) custody and investment risk; d) DvP models and e) links between SSSs.

Finally, the RSSS asked to clarify the respective role of central banks and securities regulators in the oversight/regulation of the FMI and stressed the need for cooperation between them at both domestic and cross-border level.

## 2.1.2 The Recommendations for Central Counterparties (RCCP)

In November 2004, CPMI-IOSCO created a new joint group that published a second report, the “Recommendations for Central Counterparties” covering securities and derivatives CCPs.

The need for specific recommendations concerning CCPs stemmed from growing international concerns about financial innovation and the growth of OTC derivatives markets. A previous survey of dealers, in September 1998, had highlighted risks in the clearing and settlement processes (e.g. trade confirmation backlogs – a classic operational and financial risk issue that earlier drove concerns during the “securities paperwork crisis”). In May 1994, the US Government Accountability Office (GAO) report found broad weaknesses, and specifically recommended increased international cooperation on this issue. Also, at the beginning of 2000 the European Association of CCP Clearing Houses (EACH) had introduced a number of (non-legally binding) recommendations for CCP risk control management.

Unlike the RSSS, the RCCP addressed CCPs only. The RCCP provided a number of important definitions, including the definition of a CCP (for the first time in a public sector report), a “default waterfall” and “extreme but plausible” conditions for stress testing scenarios.

The Report laid down 15 recommendations, including a number of recommendations reflecting the specific nature of CCPs, such as default management and investment risk, and an assessment methodology.

### 2.1.3 The Principles for financial market infrastructures (PFMI)

In 2008, CPSS and IOSCO embarked on the holistic review of international standards, in response to the Great Financial Crisis of 2007-08. Although this was the main trigger, there were a number of other good reasons to re-write the standards for FMIs. In particular, there was a need to incorporate the lessons learned in the ten years of implementing the three set of standards (CPSIPS, RSSS and RCCPs) along with the new developments that had arisen during those ten years (e.g. development in tiering, operational risk and interdependencies). These factors imposed the need to raise the bar, making the existing requirements more stringent (including enlarging their scope) and laying down “new” requirements, also taking into account the need for a new type of FMI (i.e. trade repositories) and strengthening CCPs, given the more pivotal role of central clearing that was expected (given the introduction of clearing obligations in many legislative frameworks).

Before starting the preparation of the PFMI, the CPMI-IOSCO framework was formalised through the creation of a high-level Steering Group (SG), co-chaired by Bill Dudley (Federal Reserve Bank of New York) and Kathy Casey (SEC). The preparation of the new standards was then assigned to an Editorial Team (ET). This work led to the publication of the CPMI-IOSCO Principles for financial market infrastructures (PFMI) in April 2012.

## 2.1.4 Key strategic design issues and decisions

The PFMI were prepared following a number of key strategic design issues and decisions.

First, it was agreed to have a single set of principles covering all FMI types, based on existing principles where possible and clarifying those Principles (or key considerations of the Principles) were relevant only for some FMI types. To do so, a definition of financial market infrastructure (FMI) was introduced for the first time.

Second, it was agreed to split the requirements for the FMIs (the “Principles”) from the requirements for authorities (“responsibilities”) and the market-wide recommendations. In this way, the report would provide a set of minimum standards to FMIs that they could use for self-assessment and which the relevant authorities could apply for oversight.

Third, there was a need to reconcile the principle-based approach and the need for granularity to avoid vague meaning and inconsistent interpretation. Although the report remained principle-based, in a number of cases, guidance was provided on how to observe the Principles and it was then left to the FMI to provide evidence that alternative approaches were equally sound and reliable.

Fourth, it was important to avoid that the need to take into account the different risk profiles of the various FMIs and the legal frameworks of their respective jurisdictions would not have led to adopting a too flexible and too pragmatic approach based on the lowest common denominator. This issue has been addressed by adopting a risk-based approach subject to a minimum standard and applying proportionality to the maximum extent possible.

Fifth, there was a need to strengthen minimum standards where necessary and provide “stronger” or “more qualified” standards” (e.g. adoption of the concept of a complete allocation of default-related credit and liquidity risk because of nature of FMIs as systemically important intermediaries largely for other financial institutions). The need to address systemic risk and take into account CPMI and FSB work on interdependencies led CPMI and IOSCO to introduce the concept and definition of globally systemic importance (for CCPs) and their key implications.

Last but not least, it was important to ensure comprehensive and consistent enforcement and use of the standards. This has been achieved through the G-20 “agreement” to adopt the standards; the Basel Committee on Banking Supervision (BCBS) action on qualifying central counterparties, and the development of a new assessment methodology and implementation monitoring process.

## 2.1.5 New organisation and Post-PFMI reports

After the finalisation of the PFMI, CPMI-IOSCO further reviewed its structure. The SG became a permanent structure and introduced two permanent sub-structures: the Policy Standing Group (PSG) and the Implementation Monitoring Standing

Group (IMSG), following the same structure as the BCBS. Under the new organisation the CPMI-IOSCO has produced a number of additional reports also making use of ad hoc working groups where required. Without pretending to be exhaustive it is worth mentioning: Guidance on resilience of CCPs, Guidance on Recovery of FMI, Guidance on Cyber resilience and work on Digital currencies.

### 3 CPSS/CPMI and Eurosystem activities

Generally speaking, most of the Eurosystem central banks have been working cooperatively together and with other G-10/G-20 central banks to identify and develop the entire field of payment and settlement system policy and oversight, in particular through the CPSS.

There has always been a dual relationship between the CPSS/CPMI and the Eurosystem.

On the one hand the contribution of the Eurosystem has informed the work of the CPSS. In addition, some of the Eurosystem's activities (e.g. the implementation of TARGET and SSS user standards have “inspired” work carried out by CPSS and CPSS-IOSCO).

On the other hand, the Eurosystem has been committed to implementing common policies and standards and spreading them throughout the European Union, acting as a regional hub for the CPSS/CPMI. For instance, the CPSS-IOSCO recommendations for both SSSs and CCPs were the basis for the analogous recommendations produced by the European System of Central Banks and the Committee of European Securities Regulators (see Chapter 3 in Part 6). The same applies to CPMI-IOSCO Cyber Guidance (see Chapter 3 in Part 4).

Part 1

The Eurosystem as operator:  
TARGET2, T2S and collateral  
management systems

# Chapter 1 – TARGET 2 and the birth of the TARGET family

Prepared by Jochen Metzger<sup>1</sup>

Available to the market since 2007, TARGET2 is the first truly pan-European integrated market infrastructure for high-value payments. TARGET2 has quickly become a major and enduring success. The European Central Bank (ECB) and the Eurosystem have established the name “TARGET” as a leading global brand for the swift and reliable settlement of euro payments in central bank money developed and operated by a central bank consortium currently known under the 4CB-label. This has motivated us to continually enhance our range and to add further complementary services to create a fully-fledged and highly integrated market infrastructure offering. Looking back, the TARGET2 go-live thus represents the birth, as it were, of the “TARGET family”, a family network consisting of the individual TARGET services as we all know and appreciate them today. From my perspective as an insider, who has played a major role in the establishment and expansion of the Eurosystem market infrastructure services almost from the very beginning, this family network ultimately makes a very significant contribution to the smooth functioning and convergence of the European financial market. Given that large financial market infrastructures are always a joint achievement of all stakeholders, when I mention this convergence of the TARGET family, I am not only thinking of the Eurosystem’s range of services but also, in particular, of the stakeholders involved at all levels. In keeping with our credo of always developing our services with the market and for the market, we have consistently included all relevant players right from the outset. Despite their differing views and vested interests, the market participants and the Eurosystem market infrastructure experts have ultimately grown, from what was initially more a community of convenience, into reliable partners. In view of the fundamental changes currently occurring, it will certainly be interesting to see how the TARGET family evolves over the next 20 years.

In order to understand why the ECB and the national central banks are involved in payment systems and, indeed, why they operate the leading European market infrastructure – TARGET2 – for this purpose, it is crucial to grasp the key function of payments for the smooth functioning of the European economy based on the division of labour and featuring well-developed financial markets. Just as the circulatory system supplies the human body with nutrients and oxygen, an efficient, secure and moreover, highly available payment infrastructure ensures the frictionless movement of goods, services and capital throughout Europe. In addition, payment systems are also of fundamental importance for the implementation of the ECB’s monetary policy. In particular, individual payments – time-critical, large-value payments between banks – have special systemic importance. Even minor problems in this specific

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segment could have far-reaching consequences for European financial markets and the real economy. In extreme cases, they could also jeopardise the stability of the entire European financial system. To me, this clearly illustrates why it is the ECB and the national central banks of the Eurosystem, as competitively neutral sovereign entities, that were entrusted with the statutory task of promoting the smooth functioning of payment systems. It also clarifies why the Eurosystem offers its own service, TARGET2, for urgent interbank and commercial payments – a real-time gross settlement system providing banks with direct settlement of payments in highly secure central bank money with immediate finality. Only central banks can act as settlement agents in central bank money entirely without credit risk and liquidity risk, thanks to their unique selling proposition. In this vein, I would like to add that we have therefore always been cautious about outsourcing the operation and management of our central bank accounts to private entities. This is because operations in and access to central bank money have a considerable impact on our monetary policy, on financial stability, i.e. on the fulfilment of our core tasks.

By providing broad, non-discriminatory access to TARGET2, the Eurosystem offers the entire European banking industry attractive settlement services. In doing so, the Eurosystem is not pursuing any commercial interest whatsoever but nevertheless is subject to the cost recovery principle. As a system of systems, TARGET2 also provides secure and efficient settlement in central bank money for privately operated settlement systems or ancillary systems. For example, payments from foreign exchange settlement and retail payment transactions are being processed via the dedicated TARGET2 ancillary system interface.

Looking back at the past 20 years our first priority was to implement what was absolutely necessary in order to launch the euro. We needed a secure and efficient solution for the uniform implementation of European monetary policy and large-value payments in Europe and we needed it quickly. We rolled out the TARGET network on 1 January 1999, the same day the euro came to life as book money, with notes and coins to follow only in 2002. The TARGET network, or “TARGET1” as we call it today, gave the euro a monetary policy and payment systems infrastructure to get it started. However, it was clear from the very beginning that, in the long run, this network of very different national RTGS systems would neither meet the needs of market participants nor promote the vision of European integration. The conceptual work on an integrated pan-European solution therefore quickly took off and was rapidly fleshed out by intensive cooperative dialogue with market participants. In November 2007, the stage was set. The Eurosystem launched TARGET2, the first pan-European integrated platform for the settlement of urgent payments in euro central bank money and took on a truly pioneering role in European integration. We lived European integration in the form of hundreds of thousands of payments being settled every day, whilst elsewhere, others were still at the drawing board, pondering the matter. After its launch, TARGET2 took the European financial world by storm. On average, roughly 340,000 payments with a total value of around €1.7 trillion are processed via TARGET2 each business day. Via TARGET2, payments can be addressed not only to some 1,050 direct participants and approximately 600 indirect participants, but also to over 40,000 recipients in almost 170 countries. With this

huge community of participants and reachable banks worldwide, TARGET2 serves as the backbone of correspondent banking in euro.

The pioneering success of TARGET2 encouraged the ECB and European key players to continue to think constructively about the establishment and expansion of other pan-European integrated services in central bank money, thus laying the groundwork for the TARGET family. Just like a typical family, the TARGET family also includes various members lineally descended from one another and supported by the original application TARGET2. In this context, both the TARGET family and its individual members are constantly evolving, and their relationship is deepening.

In order to resolve the persistent fragmentation of European post-trade services and the concomitant inefficiencies in settlement, the ECB put forward to European central securities depositories and financial market actors the idea of settling securities in central bank money on one technologically integrated platform under the name of T2S or TARGET2-Securities, the Eurosystem's largest and most complex project to date. Since 2015, T2S has been the first additional member to join the TARGET family as a central hub for the settlement of European securities transactions in central bank money. However, T2S has not only technically integrated securities settlement in Europe, it is also the catalyst driving harmonisation in the post-trade area. In just a short space of time, T2S has considerably simplified matters in many areas.

In November 2018, the Eurosystem was able to report yet another addition to the TARGET family: TARGET Instant Payment Settlement (TIPS), as the harmonised and standardised pan-European service for the direct settlement of instant payments in central bank money and the first cornerstone of its Vision 2020. Under this heading, the Eurosystem has started work on a sustainable and future-proof concept, developing joint components and infrastructures with which to connect the members of the TARGET family, including Eurosystem collateral management. TARGET2/T2S consolidation, the central part of the concept, will make the TARGET family even more modern, user-friendly and fit for purpose by the end of 2022. Standing front and centre here is the introduction of centralised liquidity management and the migration of all messages to the ISO 20222 format, which will enable all members of the family to speak the same language and understand each other better. The TARGET2/T2S consolidation will also feature modules for the use of all parties, such as a single access portal and common reference data management. The new Eurosystem Collateral Management System (ECMS) will be rolled out in 2023, marking the addition of yet another new member to the TARGET family, rounding out the Vision 2020. The current generation of the TARGET family will therefore consist of:

- T2 (featuring central liquidity management and the RTGS settlement service)
- T2S (DvP settlement of securities against central bank money in EUR and DKK)
- TIPS (settlement of instant payments in central bank money in EUR and – soon – SEK) and

- ECMS (unified system for managing assets used as collateral in Eurosystem credit operations).

I wish to underscore at this juncture that, through my many years of work in payments, the TARGET family is a topic to which I have personally become very closely attached. The Bundesbank is now, and has been from the very beginning, part of the consortium of developers and operators behind the TARGET family. Together with the central banks of France and Italy, it got TARGET2 up and running and has been operating it very successfully and reliably for over ten years. As a result of T2S, the Banco de España joined our consortium of developers and operators, which now goes by the acronym, "4CB". I am very proud to have been able to play a leading role, together with my French, Italian and Spanish colleagues, in the foundation, growth and development of the TARGET family.

However, it is not just the 4CB that has increasingly converged at the personal, expert and functional levels. The intensive exchange of staff and close cooperation between experts from the ECB, and from the national central banks, have helped those involved in the Eurosystem's market infrastructures to forge a true common identity.

As in any real family, the TARGET family is also concerned with money, how to make the most efficient use of it and, ideally, even save some of it. In this spirit the Eurosystem's service offering already now provides appealing liquidity management features. With TARGET2 banks can manage their central bank money liquidity throughout Europe via a single point of access, which boasts first-rate processing logic as well as a broad and sophisticated array of liquidity management functions. In a similar way, T2S also helps institutions to use their cash, securities and collateral liquidity in a much more efficient and targeted manner.

The growth of the TARGET family, whose members compete on liquidity, motivated the Eurosystem to fundamentally reorganise the family's liquidity management set-up thereby further strengthening its features. With the introduction of the central liquidity management of the future T2 service, individual payments will be clearly separated from pure liquidity management operations. The Eurosystem will then provide the treasurers with even more convenient and flexible liquidity management options across all TARGET services in the TARGET family. Banks can hold their central bank money balances in this cash pool to serve as a flexible source of liquidity for RTGS, T2S and TIPS settlement services. Individual payments will be settled in the dedicated RTGS service which in terms of its functions will utilise many of the well-known and tried-and-tested elements from the processing logic previously seen in TARGET2, as well as institution-specific transaction management features. In my view, liquidity management is the area in which we can see how services have already merged and how they will soon become even more closely interlinked.

All in all, being part of a family like the TARGET family is beneficial to all parties involved in many respects. And when I talk about family here, I mean not only our range of market infrastructure services, but also all of our stakeholders. Alongside the ECB and the Eurosystem central banks, this group also includes the large and diverse user community of the European banking industry, central securities

depositories and service providers, which goes far beyond the scope of even an extended family. Engaging in multilateral dialogue, our views have gradually converged in countless rounds of discussions over the past two decades. We have also had major disagreements every now and then, just like any real family. However, over time, we have each managed to develop a better understanding of the other parties' points of view. In retrospect, this intensive level of interaction has proved to be a key factor in the subsequent success of our services. Although, admittedly, discussions about the best solution were often not easy due to conflicting interests, they ultimately paid off for all parties involved.

To sum up, we can all be proud of the fact that we have established TARGET Services as the leading secure and efficient product family for payments and the post-trade sector in Europe – a family that also ranks high on the global stage. The appeal of TARGET Services centred around the central liquidity management is huge and vast, extending beyond the euro area. Danmarks Nationalbank and Sveriges Riksbank have expressed great interest in using TARGET Services for transactions in their domestic currencies. T2S and TIPS are already capable of processing multiple currencies, and the new T2 service will be no different. T2S can already be used to settle securities transactions in Danish krone. In addition, TIPS is scheduled to support Swedish krona from mid-2022 and plans to make settlement of payment transfers possible in other currencies are already on the drawing board. In this way the TARGET family is making a very important contribution to the further integration of European financial markets and also to capital markets union beyond the euro area.

But one thing is certain: we cannot and do not want to rest on our laurels. That is why we are constantly adjusting to rapidly changing conditions. We are already exploring today, how we can ensure that our range of services remains attractive and efficient tomorrow, in view of the major, complex challenges of digitalisation, which have been amplified by the COVID-19 pandemic. Of course, we are also considering how we can use distributed ledger technology (DLT) in high-value payments, for instance when setting up non-similar facilities. In addition, we are addressing topics such as the issuance of digital central bank money and programmable money. Perhaps, in a first step, TARGET2 could be linked to smart contracts or an asset token on a blockchain. Using a technical interface of this kind, the cash leg of transactions concluded on a DLT platform could then be settled in central bank money (e.g. via TARGET2).

In view of our large and very lively TARGET family, with its experienced teams at both the central bank and customer ends, I am sure that we will also be able to overcome these future - and by no means trivial -, challenges in our fundamentally changing environment. I will close with our motto: TARGET Services – watch out for the next generation!

# Chapter 2 – TARGET

Prepared by Dieter Reichwein<sup>1</sup>

## 1 Historical background

In the 1990s, the development of large-value payment systems (LVPS) in the EU, including of TARGET (the Trans-European Automated Real-time Gross settlement Express Transfer system owned and operated by the Eurosystem), was shaped by two objectives, namely the reduction of systemic risk in payment systems and the preparation for Stage Three of Economic and Monetary Union (EMU).

Already, about a decade earlier, a new revolution had started which was brought about by both the exponential increase in the value of payments caused by the phenomenal expansion of financial transactions, and the advent of electronic data-processing and telecommunications technology.

Central banks reacted to the new developments in two ways: first, they required substantial improvements in the safety features of netting systems, and, second, they promoted real-time gross settlement (RTGS) systems which affect final settlement of interbank funds transfers on a continuous, transaction- by-transaction basis throughout the processing day. Both reactions were largely coordinated through international cooperation.

The first of these reactions was developed in 1990 at the G10 level, by means of the “Report on Interbank Netting Schemes”, also known as the Lamfalussy Report. This report set out prudential rules for interbank netting schemes. This was triggered by an increased awareness that financial markets assumed that obligations in a payment system were settled with finality (i.e. without any remaining risks) as soon as the notification of incoming payments was received. However, credit risks in a net settlement system are extinguished only with the settlement of all net positions in the system, which sometimes only occurred on the next day. As a result, the failure of one participant to meet its obligations at the time of settlement could lead to the unwinding of payments that other participants had wrongly expected to be final. This could lead to a domino effect since other participants might not be able to meet their obligations either (systemic risk).

The second reaction, the promotion of RTGS systems, was linked to the fact that, de facto, the Lamfalussy report introduced additional costs in order to prevent the creation of systemic risk in case of a failure of one or several major participants. While some net settlement systems adapted their systems to the new rules set by the report, most countries moved to RTGS systems. In the EU this was initiated within the framework of the European Monetary Institute (EMI). In 1993 the EU central banks published a report on “Minimum Common Features for Domestic

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Payment Systems". One of the main recommendations of the report was that as many of the large-value payments as possible should be channelled into RTGS systems. This constituted a major milestone in the promotion of RTGS processing within the EU. In 1993 the "market share" of RTGS systems in the EU was about 5% in terms of value. In 1998 it reached 50%. In "euroland", following the successful introduction of TARGET in January 1999, this share stood at 70%.

Almost in parallel to these developments, in the mid-1990s Europe was pursuing a single currency and EU countries were preparing for the change from their national currencies to the euro. Within the EU's central bank community, the question arose as to how the euro could circulate between the Member States in a fast and reliable way in order to ensure a secure implementation of the single monetary policy, efficient arbitrage in a single euro money market and, more generally, the efficient and safe settlement of large-value payment flows between participating countries. Before the introduction of the euro in January 1999, the prevalent way for making cross-border payments within the EU was correspondent banking.

In the mid-1990s, the majority of Member States already had their own RTGS systems, but only for the settlement of transactions in their national currencies. Thus, in November 1994, the EMI published a report entitled "The EMI's intentions with regard to cross-border payments in Stage Three", which set down the basic principles and objectives as well as the approach to be adopted by national central banks (NCBs) and the EMI in creating a new cross-border payment arrangement for Stage Three of EMU. In March 1995, the Council of the EMI decided that all EU NCBs should be ready to connect to TARGET by 1999. However, the necessity to be ready in time for the introduction of the euro did not grant sufficient time to build a fully-fledged single RTGS system. Therefore, the only feasible solution was to link the existing RTGS systems and define a minimum set of harmonised features, basically for sending and receiving payments across national borders (i.e. inter-Member State payments). At the national level, central banks continued to function as they did for the settlement of payments within their own banking community (i.e. intra-Member State payments). This approach kept the changes that the banks and central banks had to undergo to a minimum, which was important at a time when they were already heavily involved in the changeover to the euro and the single monetary policy. As a result, TARGET initially had a decentralised structure – a "system of systems" – consisting of national RTGS systems (one per Member State), the European Central Bank (ECB) Payment Mechanism (the ECB's system) and the Interlinking system, which together formed a technical framework for the processing of cross-border payments.

A unique feature of TARGET<sup>2</sup> – and of today's TARGET2 system as well – was the fact that its payment services in euro were available across a geographical area which was larger than the euro area. There are historical reasons for this. Because it was necessary for all countries adopting the euro to participate in the system, and given the limited time available for the establishment of that system, the then 15 NCBs all had to begin investing in TARGET before knowing whether they would join the euro. For this reason, the Council of the EMI agreed in 1995 that all EU NCBs

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<sup>2</sup> The first generation of the TARGET system is sometimes referred to as "TARGET1".

would prepare themselves for connection to TARGET in 1999. It was indicated, however, that for those countries which would not adopt the euro from the outset, the connection to TARGET would be subject to conditions to be decided by the Governing Council of the ECB.

Those conditions were set out in July 1998. Non-euro area NCBs were allowed to offer limited amounts of intraday liquidity to their credit institutions in euro on the basis of a deposit in euro held with the Eurosystem. Safeguards were established in order to ensure that non-euro area credit institutions would always be in a position to repay that intraday credit in time, thereby avoiding any need for overnight central bank credit in euro. This was – and remains – a very special arrangement, as it was the first time a central bank had allowed central banks of other currency areas to provide settlement facilities in its own currency. A “policy statement” issued by the ECB in November 1998 made it clear that central bank money in euro could be provided only by the central banks of the Eurosystem and indicated that the option made available to EU central banks outside the euro area was a specific exception.

Those decisions, which aimed to facilitate the transition to the euro, were initially relevant for four EU Member States: Denmark, Greece (which joined the euro area in 2001), Sweden and the United Kingdom. This option to connect to the system on a “no compulsion, no prohibition” basis was then extended to those countries that subsequently joined the EU. Although they were connected to the first-generation system, Sweden and the United Kingdom decided not to join the second-generation system. At the time of writing, out of the 27 EU Member States, all euro area Member States, Bulgaria, Denmark, Croatia, Poland, Romania and the ECB are participating in or connected to TARGET2.

## 2 The minimum common features approach for TARGET

The minimum set of common features of RTGS systems participating in TARGET included access criteria, the provision of intraday credit, operating days and times, cross-border pricing, security and minimum requirements in terms of performance. This was deemed necessary with a view to ensuring both the implementation of the ECB’s single monetary policy stance and a level playing field for banks across Europe. For example, in all countries the same type of institutions should have access to central bank money under the same conditions and money markets should not be closed in some countries while remaining open in others.

Access to TARGET was open to supervised credit institutions established in the EEA. In addition, the following entities could also be admitted as participants subject to the approval of the relevant NCB: (i) treasury departments of central or regional governments of Member States active in money markets; (ii) public sector bodies of Member States authorised to hold accounts for customers; (iii) investment firms established in the EEA which are authorised and supervised by a recognised competent authority; and (iv) organisations providing clearing or settlement services subject to oversight by a competent authority.

Liquidity availability in TARGET was facilitated by permitting the use of minimum reserve holdings for settlement purposes during the day and, in addition, the Eurosystem provided unlimited (collateralised) intraday credit, interest free, to its counterparties. Incoming funds were available for immediate reuse, and the high speed at which payments in TARGET were processed, facilitated and improved cash management for its participants. There was no upper or lower value limit for TARGET payments. The use of TARGET was only mandatory for payments directly affecting the implementation of monetary policy, in which the Eurosystem is involved either on the recipient or on the sender side and for the final settlement of systemically important payment and settlement systems.

In 1999, in addition to Saturdays and Sundays, TARGET closed on New Year's Day and on Christmas Day as well as, exceptionally in order to smooth the transition to the new century, on 31 December 1999. As payment traffic was rather low on days which had been traditionally public (or bank) holidays in most of the euro area, following a request from the European banking industry as of the year 2000 TARGET had, and TARGET2 still has, six closing days, namely 1 January (New Year's Day), Good Friday, Easter Monday, 1 May (Labour Day), 25 December (Christmas Day) and 26 December.

TARGET operated for 11 hours on each of its working days from 07:00-18:00 CET, with a cut-off time for customer payments at 17:00 CET.

The use of TARGET was supported by a transparent pricing structure, where inter-Member State payments were subject to degressive transaction fees (from €1.75 down to €0.80). Intra-Member State transaction fees were still not harmonised and were fixed by individual central banks, typically at a somewhat lower level.

### 3 Figures for TARGET

After the changeover to the euro on 1 January 1999, the date on which all funds held by credit institutions with the Eurosystem were converted – using the irrevocably fixed exchange rates – from the national currency to the euro, TARGET successfully commenced live operation on Monday, 4 January 1999, with some 5,000 participants throughout the EU.

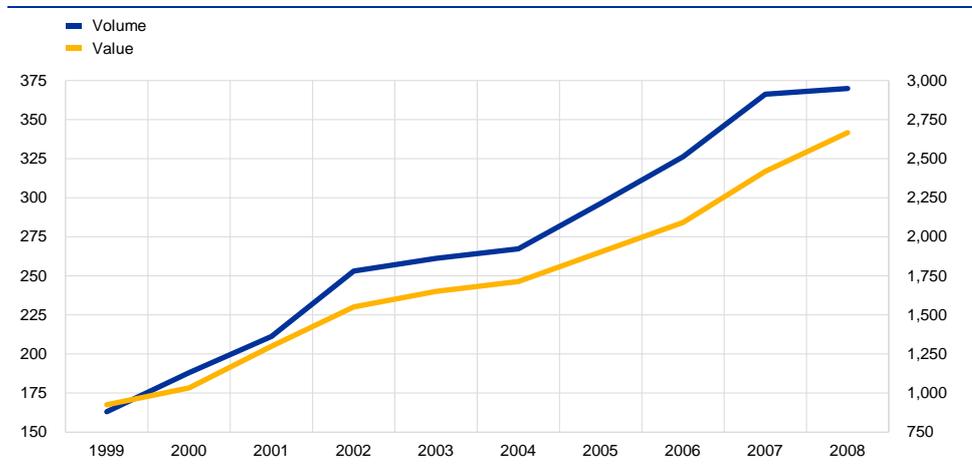
On the very first day of its existence TARGET processed 156,000 payments with a total value of €1.18 trillion, of which some 5,000 were cross-border payments with a total value of around €245 billion. A gradual increase in cross-border activity was generally expected but, in fact, the volume of cross-border payments processed via TARGET increased rapidly to a level of between 20,000 and 30,000 transactions per day – representing a value of €300 billion to €400 billion – after only one week of operation.

Looking at the first year of TARGET operations, in 1999 TARGET processed, on a daily average, 163,157 transactions of a value of €925 billion. Out of these transactions there were 134,380 domestic transactions of a value of €565 billion and 28,777 cross-border transactions of a value of €360 billion.

While TARGET was originally intended for the processing of time-critical, large-value payments in euro, TARGET users began using the system more and more for other types of transactions, including low-value payments, hence benefiting from all the TARGET advantages in terms of speed, liquidity management and security. Due to its attractive pricing scheme, even smaller credit institutions in the EU were able to offer their customers an efficient cross-border payment service.

Throughout the lifetime of TARGET, the payment traffic almost continuously increased in terms of both volumes and values. In November 2007, at the beginning of the migration to TARGET2, there were 1,072 direct participants connected to TARGET and the overall number of banks (including their branches and subsidiaries) accessible via TARGET was around 52,800, meaning that almost all EU credit institutions were reachable. Since its launch in January 1999, TARGET payment traffic had grown by around 10% every year, both in terms of value and the number of payments. In 2007, TARGET processed, on average, more than 360,000 payments per day with a total value of €2.4 trillion (see Chart 1)<sup>3</sup>. TARGET accounted for 89% in terms of the value and 61% in terms of the volume of traffic that was processed in all the large-value payment systems operating in euro at that time. In value terms, TARGET was one of the biggest payment systems in the world (see Chart 2).

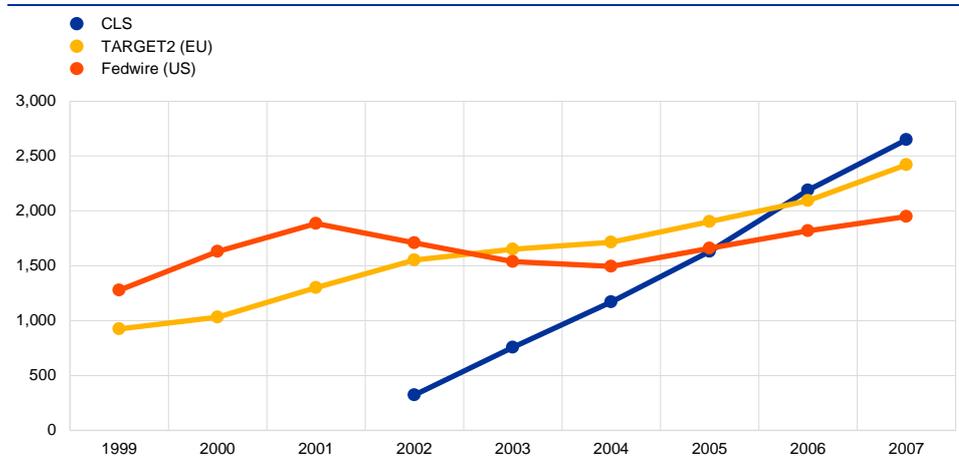
**Chart 1**  
TARGET traffic



<sup>3</sup> Source: 10 years of TARGET, MB 11/2008.

**Chart 2**

Traffic comparison in the three biggest payment systems in the world



## 4

### Experience: achievements and shortcomings

After TARGET went live on 4 January 1999, the money market short-term interest rate differentials across participating countries narrowed quickly. This indicates that credit institutions throughout the euro area adapted rapidly to the new environment by engaging in cross-border business in order to make use of arbitrage possibilities in the single money market. This greatly facilitated the conduct of a single monetary policy. Moreover, the high percentage of large-value payments that were settled in TARGET contributed to the containment of systemic risk and the euro area-wide availability of its services significantly increased the efficiency of cross-border payments.

These developments demonstrate the overall acceptance and satisfaction of the banking industry with the advantages of real-time settlement, highly automated payment processing and broad market coverage. Against this background, TARGET contributed significantly to the development of common business practices and led to an integrated market for wholesale payments from the start of Stage Three of EMU – a development that took much longer to be achieved in the field of retail payments.

These findings were confirmed in a survey conducted by the Eurosystem up to the end of September 1999 and covering individual banks, banking associations and national TARGET user groups across Europe. TARGET was recognised as the de facto standard for making large-value, cross-border payments in euro. It also had a significant impact on the way banks, both large and small, conducted their payments business in the euro area. Furthermore, banks perceived TARGET not as a central bank utility, which they were obliged to use, but as a service offered to them which added value and reduced the risks involved in their operations. The fields in which users expected improvements were (i) TARGET availability; (ii) timely information on TARGET incidents; (iii) harmonisation of the end-to-end service provided by the RTGS systems participating in TARGET, and (iv), going beyond TARGET only,

liquidity management and business practices across the LVPS that existed at that time.

Despite its achievements, the decentralised structure of TARGET meant that it had difficulty adapting in a cost-effective manner to the new needs of the market. Every time a change had to be made to TARGET services, this had to be replicated in 16 local systems. A higher resilience level would also have been much more costly to achieve in a fully decentralised IT infrastructure. The enlargement of the euro area, with additional countries joining EMU, would have significantly increased these problems, had TARGET's IT architecture remained as it was.

Against this background, the Governing Council of the ECB decided in October 2002 to develop a second-generation system. A new Single Shared Platform (SSP) would replace the old decentralised system. Three Eurosystem central banks – the Deutsche Bundesbank, the Banque de France and the Banca d'Italia – were mandated to develop and operate the SSP on behalf of the Eurosystem.

# Chapter 3 – TARGET2

Prepared by Dieter Reichwein<sup>1</sup>

## 1 The journey to TARGET2

The decision of the Governing Council of October 2002 to develop a second-generation TARGET system was preceded and followed by intense discussions within the Eurosystem and with the European banking industry on the best way to overcome the shortcomings of the TARGET system.

The Governing Council had already discussed a long-term strategy for TARGET, for the first time, in April 2000. It was acknowledged that, although TARGET had met the main objectives for which it had been created, its complex and heterogeneous technical design translated into a number of problems for its users. Cost efficiency was also considered problematic. Furthermore, the ability of the TARGET system to cope with future challenges, such as new Member States joining the EU, was questioned.

Several models for the next generation of TARGET were discussed among Eurosystem central banks, whereby the most controversial questions were probably to which extent there should be a consolidation of the IT infrastructure of TARGET and whether giving up their own IT platform would have implications for the role of the national central banks towards “their” credit institutions, the decentralised implementation of monetary policy and the provision of domestic “tailor-made services”.

In November 2002, the Governing Council created a High-Level Group (HLG) on Payment Systems chaired by Tommaso Padoa-Schioppa and, after she took over responsibility of the ECB’s Executive Board for the Directorate General Payment Systems, Sirkka Hämmäläinen in order to break the deadlock in the debate on TARGET2. During several meetings of the HLG between December 2001 and September 2002, it was increasingly acknowledged that the shortcomings of TARGET could not be overcome and the future challenges could not be met within a totally fragmented IT infrastructure of TARGET, and, in addition, that most of the arguments against an IT consolidation in TARGET would not withstand a serious and objective analysis. Therefore, in the end the question was no longer if TARGET should move towards a more consolidated approach, but only whether there should be only one or more shared components (i.e. RTGS systems) of TARGET2 and whether NCBs should continue competing with each other in the provision of TARGET services.

While there was always a broad majority of central banks favouring a collaborative approach within the Eurosystem for the provision of TARGET services, it was more

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difficult to agree on the number of shared platforms. Many central banks insisted in the usefulness for a central bank wishing to give up its individual platform in having a choice between several shareable platforms and, maybe, feared that otherwise consolidation might go too quickly towards a single platform. Other central banks were of the opinion that an agreement on one shared platform would have the advantage of ensuring a more structured and less costly gradual IT consolidation process. In addition, it would avoid forming alliances between different groups of central banks, possibly linked to rivalries between financial centres. These central banks also believed that only such an approach could avoid competition within the Eurosystem.

On 24 October 2002, the Governing Council decided to start TARGET2 with only one shareable platform known as the “single shared platform” (SSP). To exclude competition between the SSP and possible further components, it was also agreed that TARGET2 will be based on the principles of:

- (i) a broadly defined core service offered by all platforms;
- (ii) a single price structure applicable to that core service; and
- (iii) cost effectiveness, which implies that a) the single price would be based on the most efficient RTGS system (i.e. the system with the lowest cost per item), b) losses made by a central bank in the framework of TARGET would not be shared at Eurosystem level, and c) by the end of a four-year period after the start of TARGET2 operations, subsidies going beyond an acceptable public good factor would have to be phased out obligatorily.

With these decisions of the Governing Council and, in particular, the sharing of an IT platform between different central banks for RTGS processing, TARGET2 set a milestone in the cooperation within the Eurosystem/ESCB. Furthermore, the fact that cost recovery had been accepted as an indispensable requirement for maintaining an individual platform certainly added to the credibility of the Eurosystem in the outside world and ensured, and still ensures, fair competition with private system operators.

In a public consultation of 16 December 2002, interested parties were invited to give their views by 14 February 2003 on the best way to implement the approach chosen for TARGET2. In their replies, the respondents welcomed the TARGET integration process, but at the same time, indicated that the envisaged multiple-platform TARGET2 system approach would not be able to satisfy the TARGET user requirements. The European banking industry and some other respondents believed that the benefits of full harmonisation and integration, such as efficiency and effectiveness, could only be realised in a system that is fully integrated (a single-platform system). The European banking industry firmly believed that liquidity management and central collateral management – key priorities of banks – would certainly not be optimised by a multiple-platform system.

In July 2003, the Governors of the Deutsche Bundesbank, the Banque de France and the Banca d'Italia informed the President of the ECB and the Governing Council that they had elaborated the concept of a new system on which the SSP for TARGET2 could be built. This system would be composed of “building blocks” either taken from existing systems and adapted, or developed on an ad hoc basis.

While, at that time, it was still envisaged that it would be allowed that some central banks may decide to maintain their own individual platforms under the conditions outlined above, the offer of the three central banks was so attractive that eventually all central banks decided to join the SSP for TARGET2, meaning that from the outset TARGET2 was a technically, fully centralised RTGS system.

## 2 Key principles for the design of TARGET2

Four strategic orientations have been the drivers for the development of TARGET2: harmonisation, consolidation, robustness and cost efficiency.

The move from a decentralised multi-platform system to a technically centralised platform has made it possible to offer **harmonised services** at EU level and to ensure a level playing field for banks across Europe. In contrast to TARGET, a single price structure applies to both domestic and cross-border transactions. Moreover, TARGET2 provides a harmonised set of cash settlement services in central bank money for all kinds of ancillary system, such as retail payment systems, money market systems, clearing houses and securities settlement systems. The main advantage for ancillary systems is that they are able to access any account in TARGET2 via a standardised interface. At the end of 2019 there were 82 ancillary systems settling in TARGET2. Before the launch of TARGET2, each ancillary system was settling in its own way. Now TARGET2 offers six generic procedures for the settlement of ancillary systems, thereby allowing the substantial harmonisation of business practices. Furthermore, the TARGET2 system provides its participants with tools to further streamline their payment and liquidity management in euro. Managers of cash and collateral wish to have automated processes to optimise payment and liquidity management, appropriate tools to monitor their activities and facilitate accurate funding decisions, preferably with the possibility of managing all their central bank money flows from a single location.

Most visible is the **technical consolidation** of TARGET2 by moving from TARGET's “system of systems” architecture to a single platform which is jointly used by all participating central banks. The technical consolidation of TARGET2, the features the new system provides and the harmonisation of interfaces and services, in turn, enabled banks to consolidate the organisation of their large-value payments business and to better integrate their euro liquidity management.

The use of a single shared platform necessitates strict requirements with regard to **robustness** and business continuity measures. TARGET2 has been based on a “four sites – two regions” concept. This means that the payments and accounting processing services of TARGET2 run in either of the two geographically far distant

regions. In addition, each region has two identical sites available. Hence, in case of emergency a failover between the two sites within a region (intra-region failover) or a failover between the regions (inter-region failover) can take place to restore full processing capacity within a short timeframe.

TARGET2 has improved **cost efficiency** for the benefit of users and central banks. Although the harmonisation of features, the technical architecture and the level of robustness raised costs compared with one of the previous individual TARGET components, the consolidation of the technical infrastructure considerably reduced the overall TARGET2 costs if compared to the first-generation TARGET system. In order to take account of the positive externalities generated by TARGET2 (e.g. in terms of the reduction of systemic risk) a “public good” factor was defined, for which costs do not have to be recovered. Moreover, from a banks’ perspective the liquidity-saving features, available system-wide, allow banks to manage their liquidity more efficiently across the euro area and to save costs.

The decision to develop TARGET2 also took account of the enlargement of the EU and the euro area. If the new Member States had joined the TARGET architecture, it would have increased the number of interconnected national RTGS systems. As a result, this would have contradicted the four above-mentioned strategic orientations.

### 3 Migration to TARGET2

After five years of development the Eurosystem successfully launched the TARGET2 system on 19 November 2007, when the first group of countries (Germany, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Austria and Slovenia) migrated to the single shared platform. This first step was very successful and confirmed the reliability of the TARGET2 platform, which, following this initial migration, was already settling around 50% of overall TARGET traffic in terms of volume and 30% in terms of value.

On 18 February 2008, the second migration group (Belgium, Ireland, Spain, France, the Netherlands, Portugal and Finland) successfully connected to TARGET2, followed, on 19 May, by the final group (Denmark, Estonia, Greece, Italy, Poland and the ECB). As a result of careful monitoring by the national central banks, all related testing activities were completed successfully and on time for all user communities. Between November 2007 and May 2008, procedures were put in place to ensure that those user communities which had a later migration date (and were therefore still connected to the former TARGET system) could interact effectively with the user communities already connected to the SSP of TARGET2. The six-month migration process was very smooth and did not cause any operational disruptions.

A detailed assessment of the effects of the migration to TARGET2 conducted in 2008 highlighted, inter alia, that:

- (i) The migration to TARGET2 did not cause any discontinuity or disruption in the general traffic trends in TARGET.
- (ii) Neither payment flows nor participants' behaviour was significantly affected by the migration.
- (iii) The number of direct participants decreased by around one-third compared with the first-generation system, while the number of addressable institutions increased. TARGET2 created strong incentives for banks to rationalise their euro liquidity management and centralise it in fewer RTGS accounts.
- (iv) The consolidation of multi-country banks' payment activities also had the effect of shifting around half a million commercial transactions from "intra-Member State traffic" to "inter-Member State traffic", thereby further blurring the distinction between these two segments.

The completion of the migration to TARGET2 by May 2008, helped the banks to better absorb the shock from the financial crisis that hit the banking system after the collapse of Lehmann Brothers, in September of that year. The features offered by TARGET2 helped the banks to better manage their liquidity problems during these difficult times.

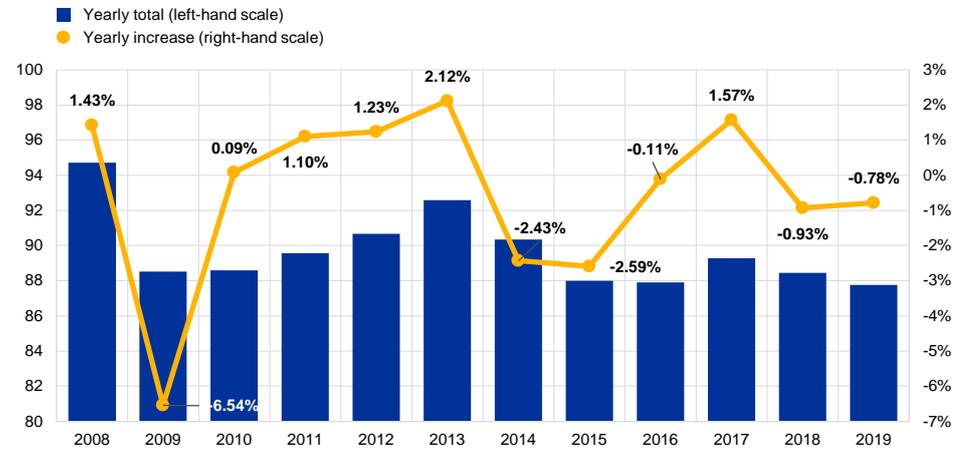
## 4 Figures for TARGET2

In June 2008, the first full month of operation of TARGET2, a daily average of 378,000 transactions was settled in TARGET2. The migration from TARGET to TARGET2 did not significantly affect the general trend in system traffic that had been observed over the previous three years.

Chart 1 shows the traffic development since the go-live of TARGET in 2008. After low transaction volumes resulting from the financial crisis, TARGET2 traffic recovered, posting a positive trend between 2010 and 2013. Although the number of transactions never reached pre-crisis levels, the system attracted around four million transactions more over that period. However, this trend reversed in 2014 and 2015: because the period for migration to Single Euro Payment Area (SEPA) instruments ended, there was, once again, a significant reduction in the customer payment segment, leading to lower TARGET2 volumes. Following the completion of the migration to SEPA, TARGET2 traffic has stabilised at around 88 million transactions annually.

**Chart 1**  
**TARGET 2 traffic**

(left-hand scale: EUR millions; right-hand scale: percentages)



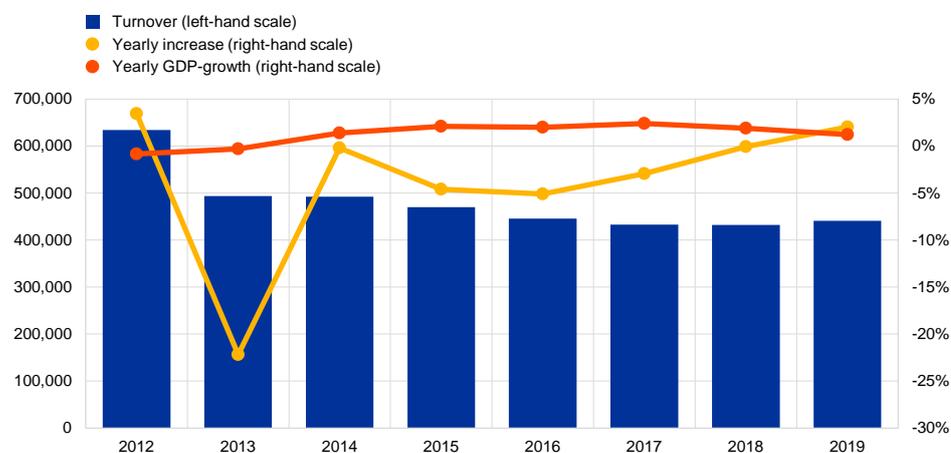
The exact volume settled in TARGET2 in 2019 amounted to 87,751,040 transactions, corresponding to a daily average of 344,122 payments.

TARGET2 turnover in 2019 amounted to €441.3 trillion, corresponding to a daily average of €1.7 trillion. Chart 2 shows the trend in the value of TARGET2 traffic over the last eight years. In 2011 and 2012, TARGET2 settlement values continued to recover after the slump caused by the financial crisis, with an annual growth rate of around 3%. The observed drop of 22% in 2013 was due mainly to a change in the statistical methodology, which involved some transactions ceasing to be included in the aggregate representing the turnover. Overall, after two years of stable figures, TARGET2 turnover on RTGS accounts fell by almost 15% between 2015 and 2017, following the launch of TARGET2-Securities (T2S). In 2018 the TARGET2 value stabilised, and in 2019 experienced a 2% annual increase.

## Chart 2

### TARGET 2 turnover

(left-hand scale: EUR billions; right-hand scale: percentages)



A comparison of the TARGET2 turnover and the euro area's annual GDP (around €11 trillion) shows that TARGET2 settles the equivalent of the annual GDP in less than seven days of operations.

At the end of December 2019, 1,050 direct participants held an account on the SSP of TARGET2. Through these direct participants, 597 indirect participants from the EEA, as well as 4,194 correspondents worldwide, were able to settle their transactions in TARGET2. Including the branches of direct and indirect participants, a total of 44,953 BICs around the world (82% of which are located in the EEA) were accessible via TARGET2 at the end of 2019.

## 5 Outlook

On 6 December 2017 the Governing Council of the ECB approved a new project to consolidate, enhance and optimise the market infrastructure services offered by the Eurosystem. The TARGET2-T2S consolidation project will introduce a new RTGS system, offering enhanced services to the market such as optimised liquidity management features. The project has entered the implementation phase and is planned to be delivered to the market by November 2022.

TARGET2 has been running smoothly for over a decade, ensuring safety and efficiency in the European payments landscape. This landscape has significantly changed over this time, as a result of technological developments, regulatory requirements and changing consumer demands. The Eurosystem views the TARGET2-T2S consolidation project as an opportunity to enhance and modernise the RTGS services it offers to the market. The project will adopt messaging standard ISO 20022, in line with the Eurosystem's strategy to use the same messaging standard across all its services (T2S, TIPS and the new RTGS services). In the

same vein, the new RTGS system will support the multi-currency settlement of both large-value payments and ancillary system transactions.

# Chapter 4 – The Eurosystem collateral management

Prepared by Simone Maskens, Daniela Russo and Markus Mayers<sup>1</sup>

## 1 The correspondent central banking model

The Correspondent Central Banking Model (CCBM) was established by the Eurosystem (along with the euro) in January 1999, to ensure that the marketable and non-marketable assets eligible in Eurosystem monetary policy operations and intraday credit transactions (collectively “Eurosystem credit operations”) could be used by all counterparties in the Eurosystem, regardless of where those assets or counterparties were located.

One of the key features of the single monetary policy is the “equal treatment of counterparties” and granting Eurosystem counterparties the possibility of accessing all eligible collateral was therefore one of the European Monetary Institute (EMI) priorities in the preparation of the EMU.

Through dedicated agreements with the Eurosystem, the CCBM was also made available to the national central banks of Denmark, Sweden and the United Kingdom with their respective counterparties, as these central banks were members of the European System of Central Banks (ESCB), participating in TARGET and considered potential future members of the Eurosystem community.

The CCBM was designed as a short/medium-term solution until alternative market solutions became available. At that time there was in fact only a limited number of links between securities settlement systems (SSSs) that would have facilitated the cross-border use of collateral. Those links were also considered an acceptable solution for the purposes of Eurosystem credit operations, to the extent that they were “eligible” (i.e. able to meet a number of financial stability and operational conditions set by the Eurosystem as user of SSSs).

The CCBM was originally conceived by Hans-Otto Detmering of the Deutsche Bundesbank.

Given the time constraints for preparation of EMU, the only possible solution was to rely on existing reliable procedures, also taking into account that counterparties to the monetary policy operations of the Eurosystem and participants in TARGET (now in TARGET2) can only obtain credit from the central bank of the Member State in which they are based, i.e. from their home central bank (HCB). Accordingly, the

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CCBM is based on the principle of decentralised access to central bank credit and on the relations that existed between, on the one hand, the national central banks, their central securities depositories (CSDs) and their counterparties; and on the other, the correspondent relations between national central banks. This means that all the additional costs of establishing the CCBM were borne by the central bank members of the ESCB at that time.

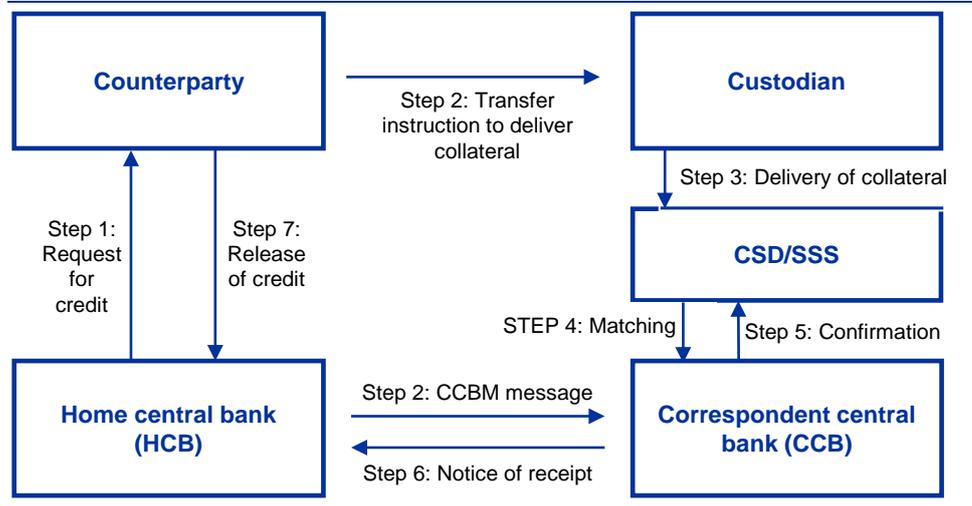
The use of the CCBM has never been compulsory. The primary purpose for introducing the CCBM was to enable interested Eurosystem/ESCB counterparties to use cross-border collateral in operations with their respective national central bank.

How does the CCBM work?

As shown in Figure 1, in the case of marketable assets, there are a number of steps:

- The counterparty requests credit to its HCB and inform its custodian to deliver the assets in the local CSD.
- The HCB informs the correspondent central bank (CCB).
- The CCB checks that collateral has been delivered in the local CSD and notifies the HCB.
- The HCB releases the credit to the counterparty.

**Figure 1**  
The CCBM: how it works



Over time, the CCBM has been further enhanced in order to also include the use of links between SSSs and the use of triparty service providers, also referred to as Triparty Agents (TPAs).

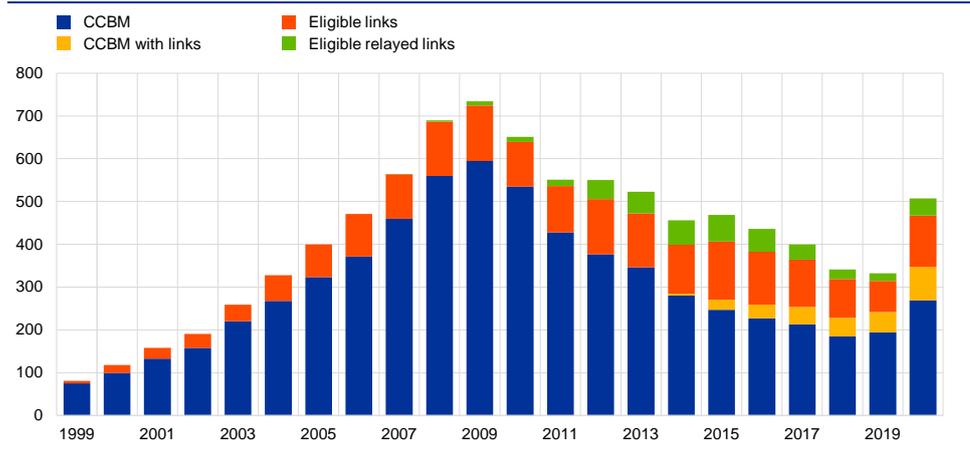
Special CCBM procedures have been developed for non-marketable assets.

What did we learn from the CCBM?

Despite being envisaged as a temporary solution, the CCBM is still operating today. The CCBM has been much more successful than expected especially considering its limitations (see Figure 1). This provides evidence that integrated and efficient money and capital markets need cross-border mobilisation of collateral. Chart 1 shows the continuous importance of the CCBM for the cross-border mobilisation of eligible collateral.

**Chart 1**

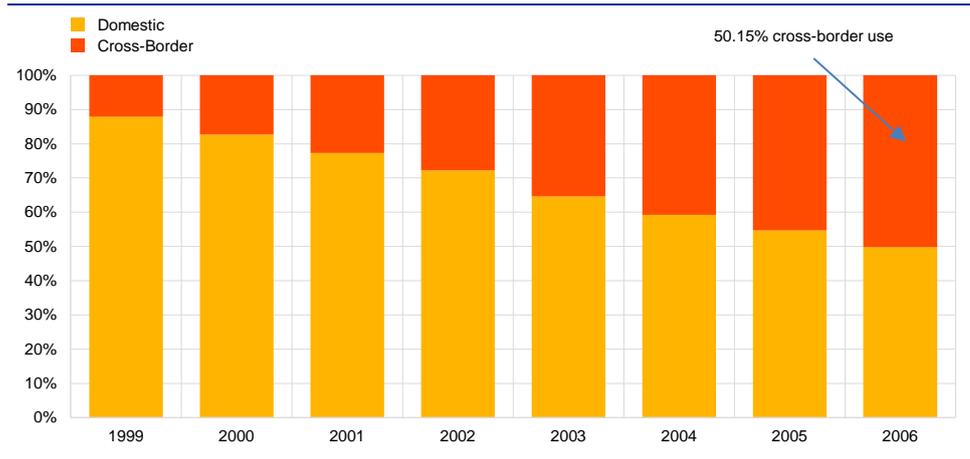
Evolution of collateral mobilised via the CCBM and eligible links



Moreover, as shown in Chart 2, in 2006 the value of collateral mobilised cross-border became larger than the amount of collateral mobilised domestically.

**Chart 2**

Domestic and cross border mobilisation of Eurosystem collateral



CCBM has two main limitations: the lack of automation and the persistence of different techniques (repo, pledge, assignment and floating charges) and different methods for holding collateral (pooling or earmarking).

They result in a number of inefficiencies: 1) the practice of work on the basis of pre-deposited collateral (i.e. collateral deposited the day before the settlement) and the

consequent “freezing” of good eligible collateral in the central bank accounts; 2) the lack of harmonisation of relevant market practices underlying the functioning of the collateralised money markets. It transpired that lack of harmonisation of market practices was one of the main barriers to market infrastructure integration, as the subsequent work of the Giovannini groups and T2S showed in the following years.

## 2 The Eurosystem Collateral Management System (ECMS)

### The way to the ECMS

In 2006, guided, among other things, by the wish to implement dual office procedures for its collateral management activity and to promote a spirit of cooperation among the central banks in the Eurosystem, De Nederlandsche Bank (DNB) decided to join Nationale Bank van België/Banque Nationale de Belgique (NBB) in the use of its new state-of-the-art, straight-through-processing collateral management system (CMS), tailor-made to monetary policy and CCBM requirements. This allowed the two banks not only to share development and infrastructure costs, but also to reduce testing effort, to work together on functional improvements, to learn from each other and to implement dual office procedures. These dual office procedures were extended to front office activities (conduct of tender operations) in 2009. They are still tested regularly and have been activated from time to time to solve or prevent a problem (strike or inaccessibility of a building, for example). To accommodate DNB’s requirements, changes had to be implemented in NBB’s system; these remained limited, however, as the NBB’s CMS supported several CSDs already. Moreover, the interaction with the Dutch CSD, Euroclear Netherlands, was based on a messaging system similar to that used by one of the Belgian CSDs: Euroclear Bank.

The CCBM in general and the repatriation requirement in particular faced criticism from market participants who regarded them as slow, inefficient and cumbersome. Moreover, multi-country banks participating in monetary policy operations in various jurisdictions had to deal with various IT requirements and message formats even when SWIFT standards were used. In response to this market criticism, the Governing Council decided on 8 March 2007 to launch CCBM2 (Collateral Central Bank Management): a common platform for Eurosystem collateral management which may be used by the Eurosystem national central banks (NCBs) on a voluntary basis.

On 20 October 2011 the Governing Council decided to discontinue the project. A number of challenges in the field of harmonisation were identified and it was decided that these issues should be addressed before proceeding further with a Eurosystem common technical platform.

### Harmonisation, the major hurdle

Harmonisation issues were linked on the one hand to divergences among NCBs in the implementation of monetary policy and collateral management and, on the other hand, to the need to interact with more than a dozen CSDs processing similar

transactions in different ways, using different message formats and applying different taxation procedures.

When the detailed functional specifications of CCBM2 were drawn up, it appeared that, despite the fact that a number of guidelines (public and non-public) set common rules for the implementation of monetary policy and related activities, deviations had taken place since the launch of the ESCB in 1998 as (1) the number of NCBs grew from 11 in 1999 to 19 in 2020, (2) different legal techniques were in place, (3) the CSDs where collateral movements were settled and who provided custody services to NCBs had different technical specificities and messaging systems in place, and (4) the texts of the guidelines left room for interpretation.

Attempts at harmonisation in the course of the project did not succeed as several NCBs decided to enable their jurisdiction's communities (CSDs, banks) in not participating in some modules or in the whole platform when their specificities were not implemented. This was possible as the Governing Council had decided when launching the project that the use of the platform and its modules was voluntary for NCBs. Without harmonisation, the complexity of the project was growing and its economic model endangered.

### **The Eurosystem Collateral Management System (ECMS)**

After the successful launch of TARGET2-Securities (T2S) in June 2015, the Eurosystem started to reflect on its vision to enhance its financial market infrastructure so that it would continue to meet the needs of the market, stay ahead of cyber security challenges and keep up with the latest technological developments. This became "Vision 2020" and was built around 3 axes: (1) the consolidation of TARGET2 and T2S to benefit from economies of scale and technological improvements, (2) new service opportunities that a closer integration of TARGET2 and T2S would bring, in particular in the field of instant payments, and (3) a review of the harmonisation of Eurosystem arrangements and procedures for collateralisation.

The purpose of the ECMS is to provide a single application for managing eligible assets as collateral in Eurosystem credit/liquidity-absorbing operations. The ECMS, as a single system, will replace the current fragmented and decentralised structure composed of 19 NCBs' local collateral management systems. At the time of writing, these 19 local systems are developed and maintained individually, increasing the duplication of effort, costs, and risk of divergences in the application of the rules, with consequences for the level playing field that monetary policy counterparties should enjoy.

The ECMS, despite being an internal ECSB project, will provide benefits not only to NCBs (cost and implementation effort reduction, more efficient change management, internalisation of CCBM transactions) and to the ECB (online view of collateral activity within 19 NCBs, harmonised implementation of new features), but also to the NCBs' counterparties (harmonised messaging and communication, same tools to access and monitor their collateral mobilisation, etc.). The ECMS will foster the capital markets union (CMU) and contribute to financial integration: it will ease central bank funding and facilitate the use of collateral across jurisdictions, enabling

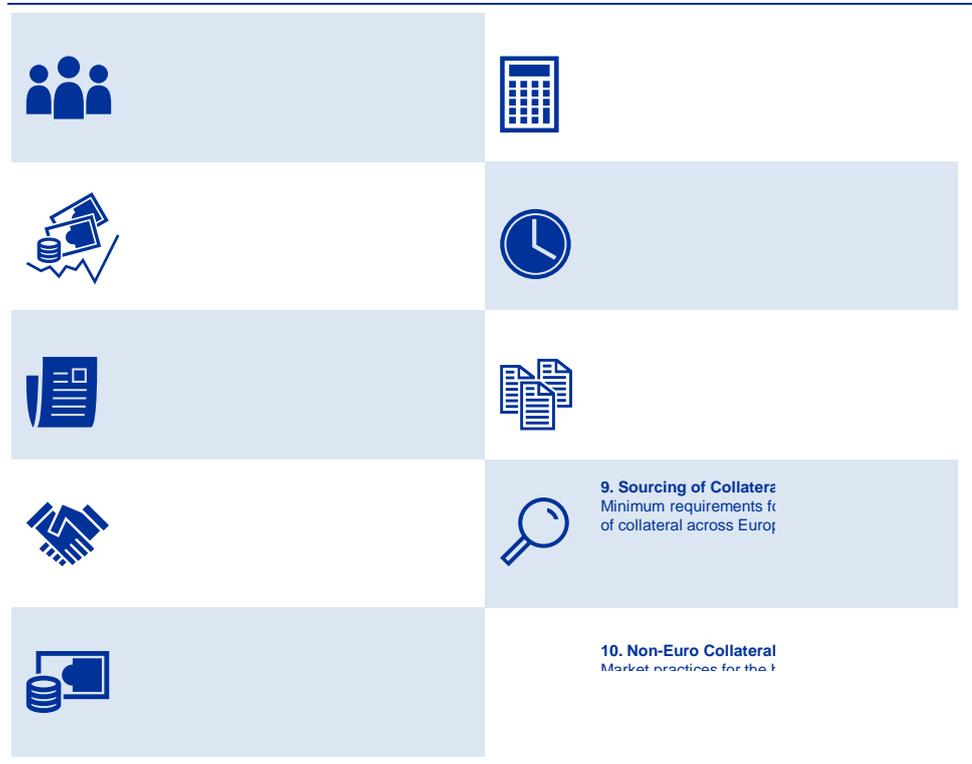
simplified and faster collateral movements. With the ECMS, the Eurosystem will be better prepared to face crisis scenarios and to rapidly make the necessary changes to monetary policy implementation features and collateral management as well as to its risk control framework.

### 3 Collateral management harmonisation

Over the years, the need for greater harmonisation in the area of collateral management has been increasingly recognised – both to support the mobilisation and use of collateral in central bank operations and market operations as well as to achieve greater financial market integration and a truly domestic single market in Europe. Activities directly targeting collateral management harmonisation were taken up by the ECB in a structured way through the ECB’s Advisory Group on Market Infrastructures for Securities and Collateral (AMI-SeCo) and in December 2017, the SCoRE initiative emerged – a **Single Collateral Management Rulebook for Europe**.

Ten collateral harmonisation activities, which had been identified by financial market stakeholders, were presented in the December 2017 report on SCoRE, and these served as the basis for the further work under AMI-SeCo and its dedicated Collateral Management Harmonisation Task Force (CMH-TF). These activities are summarised in Figure 2.

**Figure 2**  
Collateral management harmonisation activities



Up to the end of 2019, standards had been agreed in three of the above areas, which are those that financial market stakeholders considered to be most relevant in the short term, namely triparty collateral management, billing processes and corporate actions.

- Triparty collateral management

In July 2019, AMI-SeCo endorsed a single triparty model for Europe which delivers common processes for interaction between all major European triparty service providers and their participants (including the Eurosystem), using ISO 20022 messaging.

- Billing processes

In August 2019, AMI-SeCo endorsed a single set of rules for the transmission of billing information by post-trade service providers related to custody and collateral management. The rules also cover the alignment of billing frequency and dates and the need for using ISO 20022 messaging.

- Corporate actions

In December 2019, AMI-SeCo endorsed a first set of harmonised business processes and workflows for the management of corporate actions on debt instruments, also foreseeing the use of ISO 20022 messaging. Work on non-debt instruments is ongoing.

### **SCoRE Monitoring Framework**

Compliance with the defined standards has been recognised as critical to ensuring that the objectives of SCoRE in terms of efficiency and a level playing field for European stakeholders, and of fostering integration of EU financial markets can be achieved. As such, AMI-SeCo also endorsed and published a Framework for monitoring the implementation of the SCoRE Standards in July 2019.

The Monitoring Framework consists of three activities against which progress is monitored to ensure the readiness of all relevant financial market actors to comply with the SCoRE Standards in line with the agreed timelines (see Figure 3).

**Figure 3**  
SCoRE Monitoring Framework

1. Definition	2. Planning/Monitoring	3. Migration
<ul style="list-style-type: none"> <li>• <b>Defining the Harmonisation Standards</b></li> <li>• Have the standards been defined?</li> <li>• Have the implementation actors been defined?</li> <li>• Has the implementation timeframe been defined?</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Planning and setting up arrangement to monitor progress</b></li> <li>• Have NSGs submitted adaptation plans?</li> <li>• Have the key milestones been established against which progress shall be monitored?</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Evaluate progress of migration in accordance with the timelines agreed by AMI-SeCo</b></li> <li>• What is the migration status, etc.</li> </ul>

At the time of writing, National Stakeholder Groups (NSGs) of the markets covered by SCoRE (EU plus CH and UK) had been preparing their concrete adaptation plans in view of ensuring compliance with the existing SCoRE standards within the agreed timelines.

# Chapter 5 – T2S: building the European securities market infrastructure

Prepared by Marc Bayle de Jessé<sup>1</sup>

On 22 June 2015, TARGET2-Securities (T2S) was launched as the first multi-currency, central bank money securities settlement platform. It was the result of an unprecedented public-private sector collaboration to harmonise processes and market practices into a single standardised service run by the Eurosystem for the benefit of European capital markets. Supporting a more efficient functioning of the European economy and being thought-leaders for the integration of securities market infrastructures, the Eurosystem has – together with the community of European central securities depositories (CSDs) and their market participants – made T2S a success story for Europe.

The T2S programme began in May 2008 under the leadership of the European Central Bank (ECB), the 4CB (the Deutsche Bundesbank, the Banco de Espana, the Banque de France and the Banca d'Italia ), the Eurosystem (and non-euro area) central banks, European CSDs and the many market participants, to deliver a coordinated harmonised securities settlement market infrastructure for a stronger Europe.

## 1 Why was T2S needed?

The launch of the euro in 1999 – the creation of one currency for all European countries adopting it – meant that a single central bank currency was flowing freely in the interbank market. However, it was relying on pre-existing national market infrastructure. It appeared clear to the ECB Governing Council that progress was needed in the field of integration to deliver all the benefits of a single currency to European citizens. In 2007, the Eurosystem delivered “TARGET2” – an integrated real-time gross settlement (RTGS) system – that in turn supported an integrated, unsecured money market, while the secured segments remained based on ancillary “national” systems using central bank money in a national practice context, rather than a European one. This was the basis of the reflection to build an integrated secured money market relying on an integrated securities market infrastructure. T2S appeared as the best possible and practical solution in a very fragmented market infrastructure. With this solution, the European money market could become much more integrated for secured transactions too, such as the repurchase agreements (repos) largely used by market participants. This has proved very useful during the financial crisis and helped us to get through that difficult period without market disruptions.

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<sup>1</sup> Marc Bayle de Jessé was Director General of the ECB's Market Infrastructure and Payments Directorate General from 2014 to 2019.

The programme that brought T2S into live operation, has been a huge challenge for Europe in many ways; involving a great human adventure crossing different cultures, market practices, tools and organisational setups in a rapidly changing world.

To overcome these challenges and successfully build a pan-European platform like T2S, the ECB, with the support of then ECB Executive Board Member Gertrude Tumpel-Gugerell, led a group to reconcile different concepts behind the functioning national securities market settlement process. Part of Europe believed that outsourcing central bank money settlement to the central securities depositories was the efficient way to make delivery versus payment (DvP) as quick and efficient as possible, while the rest of Europe believed that central bank money – the safest asset in which to settle money market transactions – can only be used on platforms operated by central banks, leading to a model requiring interaction between different settlement systems (RTGS operated by central bank and securities settlement system operated by CSDs). Taking the best parts of the two models led to the concept of T2S – a single platform operated by central banks but delivering instant DvP through a single system.

As often happens in Europe, an informal presentation at the occasion of a dinner hosted in Frankfurt by Gertrude Tumpel-Gugerell in 2005, set the basis for agreeing to move ahead with this concept. Counterparts were taken aback by the bold idea of merging the two existing types of models for securities settlement and the initial reaction was “cautious curiosity”.

The ECB Governing Council was convinced of the merits of the T2S solution, as settlement in central bank money not only reduced risk but also improved liquidity management for the market participants. T2S paved the way for a much broader Eurosystem strategy to optimise liquidity of market participants in a single pool of liquidity for operations related to securities settlement, wholesale payments, retail payments and collateral mobilisation. The final dimension of T2S has been to create equal opportunities in the Union and to open up to other central banks of the EU – to date T2S settles both in euro and Danish krone in central bank money. This has also served as a basis to develop new Eurosystem services: being open to differences in a harmonised and integrated service has allowed state of the art and modern services to be provided for the benefit of the EU.

## 2 Building Europe on diversity and inclusion

Making a success out of such a challenge has required time, commitment and determination. Paramount to this success has been the human organisation behind it all. An incredible team has been setup, bringing together people with diverse backgrounds and personalities, from both the private and public sectors, and assigning personnel from different central banks to the development and operational teams. The reinforced governance structure put in place for T2S involved people across institutions from the CSD world, market participants and the central banks. The T2S governance structure has fostered collaboration across the board and made sharing responsibilities easier. All countries and all institutions within the T2S

governance have the opportunity to express their views and differences, and thereby add value to the community. It has required time and patience to gain momentum, but thanks to the common interest in making the European securities market a better place to trade and settle, as a community we have made it work.

Another strong benefit of this approach has been the value added through the effort of harmonising the post-trade market practices and standards in the EU and beyond. The progress achieved in this field has helped make our markets more inclusive, as well as supporting a more robust and well-functioning money market – in particular, at times of crisis when fluidity of collateral and cash may be challenged.

Indeed, a crucial advantage for the market functioning in a more efficient collateral management context, is the direct liquidity savings that T2S has generated for market participants. The liquidity needed to settle across Europe has been greatly reduced and friction across national systems has disappeared. As a result, we can now proudly speak of a domestic European securities market, in which only the final piece is missing – having our own domestic debt instrument. Maybe that will be the next chapter for Europe!

Europe is built on the motto “united in diversity”. In many ways T2S also united the securities markets in Europe, harmonising what was needed, but allowing for the diversity of the different markets. The new platform required enhancements and all the participants decided to invest in the project because of both the significant collateral and liquidity savings T2S would offer, and the recognition that T2S would pave the way for new business opportunities in the future post-trading landscape.

T2S provided banks and intermediaries with a single pool of collateral for their entire European business, thereby optimising settlement and triparty procedures. The concept underpinning T2S is continued in the ongoing advancement of the Eurosystem’s market infrastructure services which will further optimise liquidity management and give rise to new cost efficiencies.

I am proud to have been part of the T2S project team from the initial idea through to completion. With this project we have overcome political and global market tensions to successfully deliver on time, and with the desired scope and quality, and brought European integration one step further: helping to bring the European securities market ahead of the modern world into a digitalising context. Now Europe can build on these strong foundations to move to the next level of integration, with the Eurosystem bringing its various infrastructure services even closer in a consolidated TARGET2 and T2S platform that will further increase the efficiency of Europe’s money market and economy as a whole.

# Chapter 6 – The governance of TARGET2-Securities

Prepared by **Cristina Mastropasqua and Flavia Perone**<sup>1</sup>

TARGET2-Securities (T2S) is a technical platform, which allows the settlement in central bank money of securities transactions. To this end, central securities depositories (CSDs) outsource their securities accounts and non-euro area central banks outsource the cash accounts they hold for their banks. From the very start, T2S has been a highly ambitious and complex project from many viewpoints: technical, operational, economic and legal; an additional complexity was represented by its multicurrency nature.<sup>2</sup> The greatest challenge for the Eurosystem in T2S has been to ensure that all stakeholders could participate in the decision-making process in order to express their needs.

## 1 Who are T2S stakeholders and what are their needs?

### Euro and non-euro central banks

- They need to maintain control over their respective currencies and be able to safely and efficiently manage the cash accounts they hold for their banks; more in general, they need to comply with the statutory tasks<sup>3</sup> entrusted to them within the payment system, i.e. the effective conduct of monetary policy, financial stability, efficient oversight and a level playing field for market participants.

### Market participants: CSDs and users (banks)

- CSDs demand to keep control over their customers' securities accounts and to be able to develop new services; moreover, they need to comply with evolving regulatory, oversight and corporate law requirements.
- Banks request that T2S delivers a good and efficient service and maintains a level playing field among financial intermediaries; furthermore, they claim active participation in the T2S governance, since they pay for the service through fees.

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<sup>2</sup> See [T2S General Principle 10](#).

<sup>3</sup> See the Protocol on the Statute of the European System of Central Banks and of the European Central Bank, Articles 3.1 and 22.

Close involvement of all actors and transparency of the decisions made at the various levels of governance have been crucial to achieving consensus on issues often characterised by diverging views.

In 2007, the Eurosystem officially presented its initiative for the settlement in central bank money of securities transactions to the EU decision-making bodies. On that occasion, the Economic and Financial Affairs Council (ECOFIN) concluded that an effective governance structure “should adequately involve all affected market participants from across the EU and ensure responsiveness to market needs, while providing for accountability and transparency”. Moreover, the governance structure for the development and operation of T2S would have to provide solutions for the handling of potential conflicts of interest.<sup>4</sup>

This section focuses on the process that have led to the establishment of the current T2S governance structure.

## 2 The governance models explored

The set-up of a “separate legal entity” (SLE) was suggested by the ECOFIN Council as a way to avoid conflicts of interest, by separating the operation and supervision of the system. The idea of the SLE was explored more in depth in 2010 by an ad hoc task force composed of representatives of market institutions, the European Central Bank (ECB) and some euro area as well as non-euro area central banks. It was drawn from the organisational model of the United Kingdom’s RTGS system, “CHAPS”<sup>5</sup>, where two separate governance bodies existed: one in charge of all strategic and policy decisions concerning the service offered and one that owned the system application, invested and ultimately bore the financial risk.

CSDs were largely neutral on the potential creation of an SLE. They were more concerned about their degree of control over the system, under any governance structure. Several banks appeared to be in favour of an SLE as a way to ensure their participation in the governance of T2S. Non-euro area central banks were clearly in favour of an SLE that they felt would better safeguard their statutory tasks. The Eurosystem, on the other hand, did not feel its investment sufficiently protected by the separation of bodies envisaged by the SLE and feared that the fulfilment of its statutory tasks could not be guaranteed in such a scheme. Given the limited support for an SLE by the CSDs, that were its contractual party in T2S, the Eurosystem did not see convincing arguments in favour of such a solution.

In the end, it was decided to discard the SLE option and amend the existing governance arrangements in a way that stakeholders’ concerns could be adequately met.

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<sup>4</sup> Council of the European Union press release, 2787th Council Meeting, Economic and Financial Affairs, Brussels, 21 February 2007.

<sup>5</sup> At that time, CHAPS service was operated by the CHAPS Clearing Company Limited (CHAPS Co) – a private entity owned by its members. Responsibility for the CHAPS system transferred to the Bank of England in November 2017.

The Eurosystem started to explore, along with T2S stakeholders, an alternative model based on the set-up of governance bodies where each constituency (the Eurosystem, CSDs, non-euro central banks and banks) would be represented with clear roles and responsibilities, as well as the definition of rules for their interaction.

## Negotiating with the CSDs

It is important to stress that unlike TARGET2, where participation of banks was compulsory (at least for monetary policy operations), in T2S participation was on a voluntary basis. This made negotiations with the CSDs on the governance of the platform very long (over two years) and challenging.

By July 2009, all euro area CSDs and nine non-euro area CSDs had signed a Memorandum of Understanding (MoU) in support of the development of a pan-European platform for the settlement of securities transactions in central bank money. However, the positions from where the CSDs and the Eurosystem had started were largely conflicting. In particular, the first and most difficult issue regarded the concern of CSDs that, with the outsourcing of their settlement business to a public entity, they could lose control over their securities accounts – although they would have remained in charge of the business and contractual relationships with their customers. Therefore, the CSDs have made their participation in T2S conditional on having the final say on any proposals regarding the functioning of securities accounts. Had this request not been accepted, the risk was that CSDs, in particular those with the largest settlement volumes, would never have joined the platform and the project of a pan-European settlement service for securities would have been a failure, with very negative financial and reputational consequences for the Eurosystem.

The governance that was eventually agreed with the CSDs provides for a balance of controls to ensure, on the one hand, that CSDs keep the main responsibility for proposing changes to the functioning of the securities accounts and that on the other, the Eurosystem could decide not to implement any measures that are not compliant with the mandate of central banks in general and with the Statute of the ESCB in particular. The Eurosystem would need to ensure that any changes requested by the CSDs: i) would not negatively affect the Eurosystem's public policy roles in terms of monetary policy and financial stability; ii) would not lead to unfair competition in the market, iii) would preserve the smooth technical operation of T2S and; iv) would not affect the economic viability of the platform.

## ... and with non-euro central banks

Like the CSDs, non-euro central banks were also concerned that they would not retain control over the cash accounts they would outsource to T2S and that this might inhibit their ability to control their currencies and ensure financial stability.

The Eurosystem has intensively discussed with non-euro central banks a governance arrangement that would best ensure their control over cash accounts and the performance of their statutory duties. It was decided to establish a “forum” in which Governors from non-euro central banks and the Eurosystem would address and try to reach a consensus agreement on any controversial issues that could not be resolved at a lower level. However, the Eurosystem maintained that, should the Governors’ Forum not reach an agreement, its view as owner and operator of T2S would prevail. This was perceived by non-euro central banks as an impediment to the exercise of their statutory tasks. In order to address such an impasse, they demanded that the Eurosystem did not implement the controversial measure until they could exit T2S (within a maximum of two years).

## The view of T2S users

Users, the customers of the CSDs, feared that they might not be sufficiently involved in the decision-making process and that the Eurosystem might increasingly settle important matters with CSDs bilaterally. The Eurosystem assured banks that all future decisions on T2S would be made with their involvement and in full transparency. Eventually, CSDs accepted having user representatives on their steering body (the CSD Steering Group – CSG) as observers, to help make decisions in a consensual way. However, they were reluctant to allow the participation of users in the T2S technical groups, where central banks and CSDs representatives made concrete proposals on operational issues and on the technical design of the platform. Eventually, banks representatives were admitted as observers<sup>6</sup>. De facto, banks have always been involved in the project, often via their CSD and national central bank, which reported their stance to the respective steering body. In addition, banks have always been granted access to the relevant documentation – with the exception of papers subject to confidentiality requirements – e.g. through the instrument of public consultations, used to collect users’ comments on T2S main documents.

Following a strong request from the users, it was decided to maintain the T2S Advisory Group (AG), as a consultation forum of representatives from the Eurosystem, CSDs, non-euro central banks and users. Since the start of the project, this group has contributed to define a market view ahead of decisions that had a direct market impact. It has functioned very well in spite of its very large numbers (82 members and 9 observers)<sup>7</sup>.

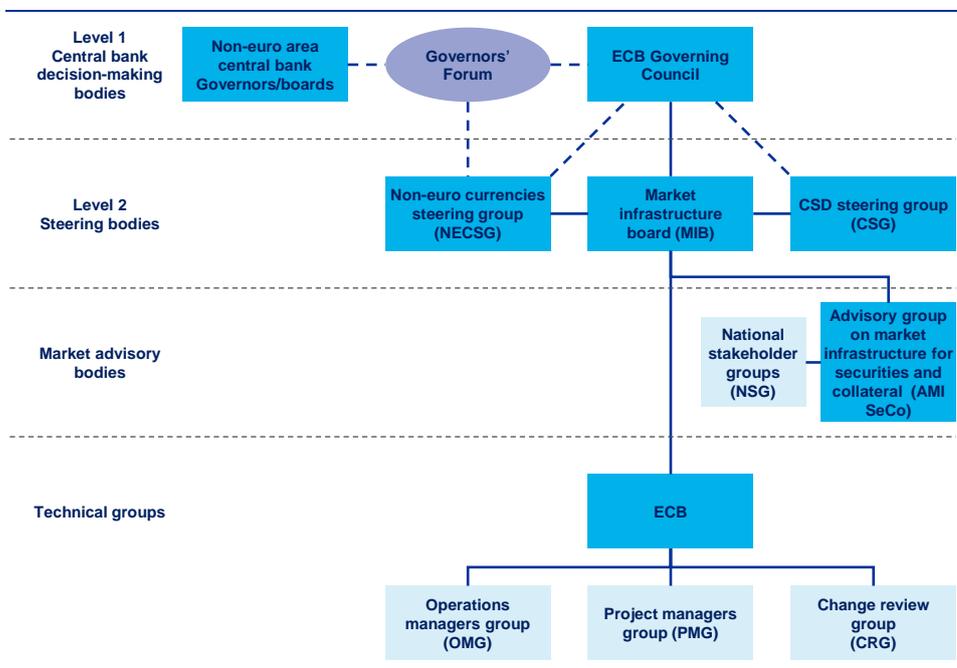
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<sup>6</sup> Banks do not participate in the Project Managers Group. See Figure 1.

<sup>7</sup> In 2017 the T2S AG was replaced by the [Advisory Group on Market Infrastructures for Securities and Collateral](#) (AMI-SeCo), a consultative body that advises the Eurosystem on matters regarding securities clearing, and settlement and collateral management, as well as T2S. AMI-SeCo represents a wide community of financial market stakeholders in Europe, including national and international CSDs, market participants, Eurosystem central banks and industry associations. AMI-SeCo covers the European Union, Switzerland and the United Kingdom.

## The T2S Governance structure

**Figure 1**  
T2S Governance structure



The governance arrangements described in this section (see also Figure 1) became an integral part of the two contracts signed with CSDs and non-euro central banks, i.e. the T2S Framework Agreement and Currency Participation Agreement, respectively. With their signing, the T2S Governance entered into force in July 2012. Its structure reflects the need to involve all stakeholders on the development and operational management of the platform. Governance includes:

### Decision making bodies:

The ECB Governing Council, non-euro central banks' governors/boards, the Governors' Forum;

### Steering bodies:

The Non-euro Currency Steering Group (NECSG) composed of representatives from non-euro area central banks;

The Market Infrastructure Board (MIB), the steering body of euro and non-euro central banks in charge of the day-to-day management of the platform and of all strategic and policy decisions delegated to it by the ECB decision-making bodies<sup>8</sup>.

<sup>8</sup> The MIB is composed of the ECB Chairperson, nine members from euro area central banks and two non-euro central bank members. Two high-level consultants from the payments and securities settlement industry also participate without voting rights. For further information, see the [TARGET Services Governance section](#) on the ECB website.

The CSD Steering Group (CSG), the steering body of the CSDs, which expresses views and adopts resolutions on T2S issues. Some bank representatives and MIB members attend as observers.<sup>9</sup>

#### **Market advisory bodies:**

The Advisory Group on Market Infrastructures for Securities and Collateral (AMI-SeCo), a consultative body that advises the Eurosystem on matters regarding securities clearing and settlement and collateral management, as well as T2S; it represents a wide community of financial market intermediaries in Europe, including national and international CSDs, banks, Eurosystem central banks and industry associations.

The National Stakeholders Groups (NSGs), which express the needs of national marketplaces. They are chaired by the national central bank and are composed of the financial market authority and market players active in the securities settlement business (the domestic CSD, the central counterparty – where one exists – banks and the domestic banking association). They represent the connection between national markets and the European advisory body, AMI-SeCo.

The technical groups are composed of experts from central banks and CSDs. They are chaired by the ECB and report to the steering bodies of the T2S governance. The Operations Managers Group (OMG) is in charge of monitoring the day-to-day operations of the system and defining the operational procedures in normal and abnormal circumstances. The Project Managers Group (PMG) has followed the planned programme during the development phase and is now responsible for defining the technical evolution of the platform (T2S releases). The Change Review Group (CRG) is in charge of examining and prioritising the proposals for technical and functional changes of T2S (change requests) put forward by CSDs and central banks. In 2019 a new technical group, the Security Managers Group (SMG), was set up. It is in charge of coordinating and monitoring all the activities relating to cyber resilience and information security. The creation of the new group bears witness to the dynamic structure of T2S Governance, which can adapt to changing needs. In the case of the SMG, the new group was created in response to the growing concern to safeguard the cyber resilience of the Eurosystem market infrastructures.

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<sup>9</sup> The CSG mandate, including its composition, is annexed to Schedule 8 – Governance of the T2S Framework Agreement. For further information, see [CSG page](#) on the ECB website.

## 4 How has T2S governance worked?

Considering that the aim was to allow each constituency to express its views and put forward its needs and expectations, T2S governance has worked well, especially after the signature of the Framework Agreement between the Eurosystem and the CSDs that clearly defined the roles and responsibilities of the two parties.

However:

The need to cater for the different and sometimes conflicting interests of the various T2S stakeholders has resulted in extremely complex governance arrangements and interactions among them. In addition, the outcome of the decision-making process has not always been balanced: in many instances, the needs of the smaller CSDs have not been sufficiently considered, while those of the CSDs with higher settlement volumes have more often than not prevailed.

Given the fact that participation in T2S was on a voluntary basis, CSDs had strong contractual power in their hands: had the system not met their needs they would not have joined. This contractual power has led to a very large number of requests to amend the technical design of the system, often presented by their proponents as “showstoppers”, even though they sometimes proved not to be so. These requests for functional and operational changes did not stop once CSDs signed the contract. The development and operation of the platform has thus been more complex and costlier than originally envisaged. In addition, the fact that the Eurosystem has always pre-financed change requests has further encouraged CSDs to submit new ones.

At times, consensus on certain issues was very difficult, if not impossible, to achieve and extraordinary measures were adopted to solve the stalemate, e.g. decisions on the composition of certain migration “waves”, which were decided through a lottery with the attendance of a notary.

## 5 Why did T2S not take-off as a pan-European platform? What happened?

Up to now, of the non-euro central banks, only Danmarks Nationalbank has signed the agreement to allow securities settlement in Danish krone in T2S (as of 2018) and this, for a system with a multicurrency nature, represents a failure. Especially if one considers that the Memorandum of Understanding had been signed by the majority of non-euro area CSDs, including those in Sweden, the United Kingdom, Switzerland and Norway, which altogether represented more than 80% of European settlement volumes. Their participation would have brought lower fees and brighter prospects for the Eurosystem in terms of project cost recovery.

The negotiations between the Eurosystem and non-euro central banks on the governance of T2S proved more difficult and time-consuming than expected. In 2010, an ad-hoc task force was set up as a forum for identification, analysis and

preparation of resolutions of the issues necessary for the signature of the Currency Participation Agreement (CPA), for both the development and operational phases of T2S. The problem that emerged during the work of the task force mainly focused on the right of non-euro central banks to oppose changes in the system, not only those impacting their statutory tasks (monetary policy and financial stability), but also those regarding operational aspects that might affect the control over their currency. In spite of having the possibility to leave T2S within two years, in case of disagreement, they did not accept the principle that the Eurosystem would have the final say on all issues. For this reason, the Bank of England and the Swiss National Bank left the negotiations early in the process.

In addition to that, there were other reasons for their refusal to join.

Most central and eastern European countries had no interest in bringing their currency to T2S until the adoption of the euro; they considered participating with their currency for a short period unjustifiable from a cost perspective, given the need to adapt the national infrastructure.

Some Scandinavian central banks deemed it essential, under national law, to allow State auditors access to the information relating to the platform, as well as the possibility of carrying out on-site inspections. This last concession was difficult if not impossible to grant, without infringing the independence of Eurosystem central banks enshrined in the EU Treaty and the Statute of the ESCB. It should also be borne in mind that the finalisation of the CPA was a precondition for some non-euro area CSDs to sign the Framework Agreement. In fact, some of them might not have been ready to sign it without greater clarity about which currencies would be settled in T2S.

More generally, there was a widespread concern across non-euro area markets that the costs surrounding participation of banks would be high, without certainties around the actual savings deriving from T2S. When consulted by their central bank about the decision to join, market players adopted a wait-and-see approach, in order to better understand T2S benefits before making a decision.

## 6 To conclude

T2S has been a great challenge for the Eurosystem that, from the outset, has firmly trusted the potential benefits of the project and has succeeded to convince the CSDs, especially the biggest ones which at the start had opposed it. However, the complexity of the project and the delay in the migration of some CSDs have led to a substantial increase in costs, which the Eurosystem is obliged to recover through fees. This, combined with the absence of the additional traffic brought about by the larger non-euro area markets, has eventually led the Eurosystem to almost double T2S fees in 2019<sup>10</sup>.

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<sup>10</sup> Fees went from 15 cent per DvP transaction to 23.5 cent. For further information, see [T2S Pricing Section](#) on the ECB website.

On the basis of the above, it is necessary to explore with EU market participants how to make settlement in T2S more cost-effective either by attracting additional markets and instruments or by reducing costs. In particular, it is of paramount importance to foster the participation of international CSDs (ICSDs, Euroclear Bank<sup>11</sup> and Clearstream Luxembourg) which play a leading role in the issuance of financial instruments, such as Eurobonds.

In addition, of the 15 barriers identified by the Giovannini group<sup>12</sup> in the 2001 report, those categorised under national differences in tax procedures are still hindering efficient cross-border clearing and settlement in Europe. Until also tax procedures are harmonised, the integration of European post-trading cannot be considered as completed and the potential of T2S cannot be exploited in full.

To achieve these goals, the T2S governance bodies should be actively involved; in particular, the market advisory bodies (i.e. the AMI-SeCo with the support of the domestic communities gathered in the NSGs) are called upon to explore the technical and economic viability of new solutions.

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<sup>11</sup> In 2019 Euroclear Bank announced the intention to join T2S (see [press release](#) of 14 November 2019 on the ECB website). A migration plan is currently being worked out in cooperation with the Eurosystem.

<sup>12</sup> The Giovannini group was set up in 1996 to advise the European Commission on issues relating to financial integration and the efficiency of euro-denominated financial markets. The 2001 report assessed the clearing and settlement of cross-border securities transactions in Europe and identified the main sources of their inefficiency. The 2003 report presented a strategy for the removal of the 15 barriers identified in the previous report.

# Chapter 7 – Instant payments and TARGET Instant Payment Settlement (TIPS)

Prepared by Carlos Conesa<sup>1</sup>

## 1 Instant payments: the new frontier

The process of digitalisation is affecting many aspects of our lives, including the way we shop, communicate or entertain ourselves. These changes are affecting many sectors including, of course, the financial sector and, within the financial sector, payments are probably one of the areas that has shown the most dynamism. In a permanently connected world in which we can send or receive information almost instantly – at any time and from any place – and at a very modest cost, it is reasonable to wonder if the process of exchanging value could benefit from a similar speed, availability and ubiquity. As a result, there has been a growing interest worldwide in the concept of fast -or even instant- payments in the last few years.

As the term clearly indicates, **instant payments** are mainly characterised in terms of **speed**, and can be defined as those payments in which funds are transferred immediately (in a few seconds) and unconditionally from the payer to the payee, so that the payee can use them immediately. The various definitions of instant payments, however, are not usually limited to speed and normally include the **availability** of the service on a continuous basis (24x7)<sup>2</sup>. A final element, which is less frequently mentioned but which also seems important in order to grasp the potential benefits of instant payments, is **ubiquity**, or the capacity to access the service anywhere through the use of mobile devices.

From a **user or demand-side perspective**, instant payments could provide benefits to different parties in a payment transaction, such as individuals, small and medium-sized enterprises, corporates or government entities. The most obvious and immediate benefit derives from the ability to make urgent payments in a short timeframe, which would speed up those processes in which a specific activity is conditional on receipt of payment. It is true that some existing payment instruments, like card transactions, can be immediately debited in the account of the payer, but the reception of the funds to the payee is normally delayed or might be subject to conditions or constraints that would hamper the payee's ability to immediately and irrevocably use those funds.

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<sup>1</sup> Carlos Conesa is Associate Director General, Financial Innovation and Market Infrastructures at the Banco de España.

<sup>2</sup> See for example, the [Committee on Payments and Market Infrastructures'](#) definition or the [Eurosystem](#) definition

Instant payments could also allow a more agile cash management for businesses and individuals and could increase competition by providing an alternative to other payment instruments. For example, they could be a potential alternative to card payments at the point of sale if a convenient user interface is designed. Finally, they could also fill some gaps that current payment instruments fail to cover. The most obvious examples are casual payments between individuals, which are usually limited to cash transactions that require a close proximity. These payments could easily be substituted by instant payments, which could also allow remote payments (again, if a convenient user interface through a mobile device is deployed as part of the instant payment service).

From a **provider or supply-side perspective**, building an instant payment service is a significant challenge at various levels. If the service is to be broadly available through a variety of payment service providers (PSPs)<sup>3</sup>, the most obvious hurdle to overcome is the design and implementation of a fast payment infrastructure that can be used by a number of PSPs for the clearing and settlement of transactions. This type of real-time payment infrastructure is already widely available in the wholesale segment with real-time gross settlement (RTGS) systems, but building a fast payment infrastructure for retail payments implies two important features that go well beyond the traditional characteristics of the RTGS systems: the capacity of the infrastructure to process a volume of transactions orders of a magnitude higher than those of traditional RTGS systems (usually limited to high-value interbank payments and urgent customer payments) and, second, providing a 24x7 availability.

Deploying such an infrastructure, however, is a necessary but not sufficient step towards the provision of fast payments. Beyond the infrastructure itself, PSPs need to enhance their internal processing capabilities to be able to debit their customers and send instant payment orders in real time and, conversely, to receive and immediately credit their customers' accounts. Additionally, if fast payments are to be exchanged and swiftly processed by a multiplicity of providers, there is also a need to agree on a set of business rules, standards and protocols. This is usually referred to as the "scheme layer". Finally, in order to reap the full potential benefits that instant payments can provide, it is essential to cover the "last mile" between the PSPs and the final users by providing an end-user interface that allows payments to be initiated easily and anywhere. This is usually done by developing mobile apps and linking accounts with other elements that are usually available in customers' devices, such as mobile phone numbers.

## 2 The situation in the euro area

In the euro area, the main efforts in the last twenty years in the area of retail payments have been focused on ensuring the success of the Single Euro Payments Area (SEPA) initiative – based on the harmonisation and increased efficiency of credit transfers and direct debits – and the goals set at the outset of the SEPA project have been achieved with great success (see Part 2 for further details on

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<sup>3</sup> Reference to "closed-loop services", which usually provide fewer benefits unless the provider has a very large base of customers.

SEPA). However, the creation of a single payments area for the euro is not a static, one-off, achievement, but rather a dynamic initiative that should evolve over time in order to continuously promote the efficiency and security of retail payments in the euro area, avoiding fragmentation along the national borders. As a result, it is only natural that, in the last few years, instant payments have made their way into the conversation surrounding SEPA.

In 2014, when discussions on fast payments started to gather momentum globally and some instant payment initiatives started to be developed in several European countries in a somewhat uncoordinated manner along national borders, the Euro Retail Payments Board (ERPB) proposed that at least one pan-European solution for instant payments in euro should be available to all payment service providers in the European Union. Additionally, the ERPB invited the European Payments Council (EPC) to develop a pan-European instant payment scheme. This scheme was developed based on the already available SEPA credit transfer scheme (SCT), with the necessary adaptations in order to cater for an instant service, and became operational in November 2017. The new scheme, called SEPA Instant Credit Transfer (SCT Inst), establishes that the instant payment transactions should take less than ten seconds to complete (i.e. this is the maximum time from the initiation of the payment by the payer until the payee is credited with the funds and notified of this). It also establishes a 24x7x365 availability of the service.

A single scheme is of paramount importance for the development of pan-European services, avoiding fragmentation and facilitating the interoperability of various infrastructures. However, as mentioned earlier, it needs to be complemented by other actions from different stakeholders, be it upstream in the clearing and settlement layer or downstream in the front-end layer.

### 3 The Eurosystem's role

The steps taken by the ERPB and EPC have of course been supported by the Eurosystem, however the Eurosystem has also acted decisively in the clearing and settlement layers in recent years with the aim of creating conditions for the development of pan-European instant payment services. The Eurosystem has carried out two main actions in this area.

Firstly, the Eurosystem has adapted the ancillary system interface (ASI) in TARGET2 to provide a settlement model adapted to the needs of retail payment systems that intend to process instant payments. Traditional retail transactions used to be non-urgent payments in which the credit of funds to the payee took place after the interbank settlement, which usually was done in batches and could take some time. In instant payments, funds need to be credited immediately to the payee, and if interbank settlement is delayed, the payee's bank needs a guarantee that the payer's bank will complete settlement in order to avoid credit risk. One way to provide this guarantee is to prefund the payments, by immobilising the necessary liquidity (which can be done in accounts at the central bank, the so-called "technical accounts"). Payments can only be processed if there is sufficient immobilised

liquidity covering the transactions, ensuring that the funds will be available for interbank settlement as well. This prefunding mechanism was deployed in TARGET2 in November 2017 under the name of “AS16 Real-Time”, which allowed retail payment infrastructures to process instant payments minimising credit risk.

Secondly, to complement the possibilities of retail payment systems, the Eurosystem decided to step up its efforts by building TIPS, a pan-European market infrastructure within the TARGET services, in order to enable payment service providers across the euro area to send retail payments in real time with a 24x7x365 availability. The decision to launch TIPS was taken by the Governing Council in June 2017 as part of the so-called “Vision 2020” to enhance and improve the Eurosystem’s market infrastructures. After a very short development phase, TIPS became operational in November 2018.

The main distinctive feature of TIPS is that interbank settlement is done immediately and irrevocably in central bank money between the payer and payee’s PSPs, avoiding the need to immobilise liquidity for extended periods of time as a guarantee of a delayed settlement. The process is simple: once a participant sends a payment instruction to TIPS, the system verifies that there are sufficient funds available in the sending PSP’s dedicated account; if this is the case, the value is blocked for a few seconds while the system sends the payment message to the receiving PSP; once the receiving PSP confirms acceptance of the payment, the system performs interbank settlement by transferring the blocked funds immediately – and in central bank money – to the receiving PSP’s account; should the receiving PSP respond negatively or in the absence of a response, the funds are unblocked. The communication with payer and payee, along with the real-time processing in the PSPs internal systems, are not part of the infrastructure. Even though the service seems simple, TIPS has been built to respond to very challenging conditions, with the capability to scale quickly, to process a very high number of transactions in short periods of time and availability around the clock, including weekends and holidays.

TIPS is based on the SCT Inst scheme and, taking into account that it is part of the TARGET services, it has a potentially high and geographically diverse user base. In fact, as settlement is done in central bank money, the participation criteria is the same as for TARGET2, making it an easily accessible part of TARGET services for current TARGET2 users.

The availability of the SCT Inst scheme and the provision of instant payment processing capabilities by a number of infrastructures, together with the deployment of TIPS, are significant steps towards the full deployment of pan-European instant payments in the scheme layer and the clearing and settlement layer. Despite this progress, full pan-European reachability has not yet been achieved, and so the Governing Council of the European Central Bank (ECB) decided in July 2020<sup>4</sup> to implement two measures to facilitate this. Firstly, all PSPs adhered to the SCT Inst scheme and, at the same time, reachable in TARGET2 should also become reachable in TIPS and, secondly, all retail payment infrastructures offering instant payment services should migrate their technical accounts from TARGET2 to TIPS.

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<sup>4</sup> See [ECB 2020](#).

These two measures will help PSPs across Europe to comply with the legal requirement to be reachable to any other PSP across Europe and will also facilitate the interoperability and pan-European reach of retail payment infrastructures through TIPS.

The actions described above mainly revolve around the scheme, clearing and settlement layers. As stressed at the beginning of the chapter, however, there is an additional layer, the front-end layer, which should not be forgotten. This layer determines the “look and feel” of the service from the perspective of the end customer and the way in which instant payments, or any other financial service, are used by them. Advances in the front-end have been slower than in other areas and even today, twenty years after the introduction of the euro, the end user experience at the point of sale (be it physical or virtual for online payments) is still fragmented or relies on global players from outside Europe. This is not only a problem for instant payments (it also affects, for example, payment cards as the main instrument used at the point of sale), but it is certainly an area that deserves more work in the future. Even though the front-end layer is not within the direct remit of central banks for the provision of services, the Eurosystem has also advocated change in this area by promoting, since 2019, the Eurosystem’s retail payments strategy<sup>5</sup>, based on five key objectives and supporting industry-led initiatives that will help achieve them.

## 4 Concluding remarks

This book recollects the history of the ECB in the last 20 years and it thus focuses mainly on the past, but in this chapter we have taken a look at a topic, instant payments, that is more forward looking than other areas, as it has only a short history behind it and will certainly remain a hot topic in years to come. Instant payments are the new frontier of the SEPA initiative and are likely to see exponential growth in the future, as pan-European services become available to citizens and companies. The Eurosystem has taken decisive steps to provide the backbone of instant payment clearing and settlement services with the deployment of TIPS, and, together with other stakeholders, is promoting advances in both the scheme and front-end layers, with the ultimate goal of enabling secure and efficient instant payments in euro. A lot of effort has been invested in instant payments in the last few years, and additional effort will be required in the near future, but the main foundations for the successful deployment of euro instant payments have already been laid.

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<sup>5</sup> See [ECB 2019](#).

# Eurosystem-operated market infrastructure: key milestones





## Part 2

# The Eurosystem as a catalyst: retail payments

# Chapter 1 – The Single Euro Payments Area (SEPA) revolution: how the vision turned into reality

Prepared by Gertrude Tumpel-Gugerell<sup>1</sup>

## 1 Introduction

“Retail payments are mainly made by consumers and between commercial counterparties to purchase goods and services. As these markets evolve, there is also innovation in payments practices and evolution in the business strategies of payment service providers. Central banks are well aware that fostering the efficiency and safety of the medium of exchange in everyday life is an integral part of their responsibilities towards the general public. Public confidence in the currency could be endangered if retail payment [instruments and] systems were inefficient, impractical for users or unsafe.” (Tommaso Padoa-Schioppa, 2002). Today, in the digital era, nobody challenges the utmost importance of integrated, sound and efficient retail payments and payment systems, and they are considered (as they should be!) to be key components of the financial system.

At the beginning of the millennium, however, the retail space was considered to be a fringe rather than a strategic area, and central and commercial bank attention was mainly focused on addressing the financial stability concerns associated with large-value payments. While the opening of TARGET2, the RTGS of the Eurosystem, was a step towards an integrated financial market, retail services remained fragmented with diverse technical standards and revenue models. This made the work we did at the beginning of the millennium very challenging but also, in the end, very rewarding.

The realisation of SEPA – from its beginning as a Regulation issued by the European Commission in 2001, to the start of several years of intensive cooperation between banks and payment providers, customer representatives, the EC, the European Central Bank (ECB) and the national central banks – was a unique undertaking, which required commitment, patience and stubbornness as well as trust. We should thank all those who have contributed over the years.

Several more of these exercises will be needed to complete the single market for financial services in Europe.

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<sup>1</sup> Gertrude Tumpel-Gugerell was Member of the ECB Executive Board from 2003 to 2011.

## 2 Why integration of EU retail payments is important?

Currency is one of the foremost expressions of political identity and a key element of integration for the society in which it is used. The European Union decided on a common currency – the euro – 28 years ago, when it adopted the Maastricht Treaty in 1992. The European Union was not and is not (yet) a political union, but the introduction of the euro was possible thanks to the desire of its Member States to generate stability and prosperity in Europe. To fulfil all the expectations related to, and the functions of, the introduction of the newly introduced single currency (the euro) we needed to enable people in the euro area to use the euro under the same conditions within and across the national borders of all EU Member States.

In order to build this vision of a united Europe we had to overcome many challenges. One important one, was the tension between diversity and unity, typical of all federal systems. On the one hand, too much centralism could have hampered the flexibility that citizens enjoyed before monetary union, but on the other, too much decentralism could have stopped the benefits of integration into a common system from being fully reaped. Differences in EU citizens' preferences were mirrored by differences in payment habits and in addition, there was also a deeper fragmentation of payment systems and instruments in national markets within the euro area.

For central bank money (and large-value interbank funds transfer), these challenges had been addressed with the introduction of banknotes and coins in 2002, and with the move first from the domestic RTGS system to TARGET1 in 1999 and then to TARGET2 in 2007. For commercial bank money and retail payments, integration required the creation of conditions that would allow euro area citizens to make payments throughout the euro area from a single bank account and using a single set of payment instruments, as easily, cheaply and safely as it is within the national context.

It sounded quite complex for an industry consisting of more than 6,000 institutions within the euro area alone to agree on common schemes, rules and standards – starting from very diverse national market situations. The only way to meet such a challenge was to have a strong common vision. As you may know, the former chancellor of Germany, Helmut Schmidt, once said, “People who have visions should go see a doctor!” A sceptic’s warning that not every vision deserves to be turned into reality. Although he himself was a visionary, rather a “doer of European Integration”. I have been always convinced that without vision, Europe would not have developed into a peaceful and powerful community within just five decades; nor would we have a successful common currency called the euro; and the SEPA project would not have been launched.

### 3 What is SEPA?

The launch of SEPA on 28 January 2008, nine years after the introduction of the single currency, was a major step in creating the Single Market and represented a significant contribution to the Lisbon strategy and a more competitive Europe. SEPA is all about integration, harmonisation and modernisation. Making SEPA a reality has been the result of the joint efforts of the private and public sector: banks (and notably the European Payments Council – EPC) as the service providers on the private sector side and the EU Council, the European Parliament, The European Commission and the Eurosystem on the public sector side.

SEPA allows for a single currency with a single set of payment instruments in a single euro payments area. And it makes euro area citizens able to make euro payments as cheaply, as easily and as safely as they do national payments. With SEPA all euro payments in the euro area can be considered “domestic”: this means that there are no differences between sending a payment from Rome to Dublin or from Brussels to Antwerp. Thanks to SEPA, we can now make payments not only with euro notes and coins, but harmonised electronic payments by European credit transfer, direct debit and payment card as well.

SEPA has brought public and private benefits to the various stakeholders.

Starting with public benefits, the safety and efficiency of retail payments concern every single citizen and every business in Europe. In the event of a payment failure or malfunction, both daily life and commerce would become extremely difficult. Correspondingly, increased efficiency in payments would help to free up time and resources, benefiting not only individuals and entities but also society as a whole. Thus, arguing for or against efforts to integrate and modernise retail payments from the financial sector’s perspective simply does not provide the full picture. As epitomised in the SEPA project, the integration and modernisation of cashless payments in Europe is an issue of public interest and an important public policy objective.

The costs of retail payments to society are not negligible. In a number of studies conducted between 2008 and 2012, it was established that the social cost of retail payments can be up to 1.09% of GDP. Research showed that migration to efficient electronic retail payments not only allows for cost savings, but also stimulates overall economic growth, consumption and trade. Retail payment transaction technology itself is also associated positively with real economic aggregates.<sup>2</sup>

Turning to the benefits for the different stakeholders, I would like to focus on the benefits for payment service providers. Payment service providers did indeed feel that the creation of SEPA put them under pressure from different directions: eroding returns due to increasing competition, substantial investment needs to keep up with customer demands and technological progress, and a more critical stance by competition authorities on issues such as interchange fees. In a context where the

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<sup>2</sup> European Central Bank, *Occasional Paper Series*, forthcoming.

financial crisis and the subsequent new regulatory requirements were significantly increasing costs, this did not provide the right appetite to invest in retail.

All this is true, yet it is only one side of the coin. In an interview given, in 2012 Christine Lagarde, at that time Managing Director of the International Monetary Fund, asserted with regard to the then-current crisis, that Europe had no other solution than to increase its integration (article published in *Les Echos*, 25 April 2012). I would like to take up and develop this statement with regard to retail payments, in order to provide the other side of the coin. Retail payment revenues account for up to 25% of total bank revenues. Unlike other sources of income, they have a reliable and stable character. Furthermore, there is a fundamental relationship between the retail payment business and overall bank performance, which shows that banks perform better, in terms of costs and profits, in countries with more developed retail payment services.

SEPA has been important for Europe, not only for internal reasons but also in making it more competitive, thereby supporting the Lisbon strategy.

By making it easier to use electronic euro payments, SEPA triggered the development of related electronic services for enhanced business processes. Moreover, SEPA provided a much higher degree of market transparency and significantly less entry barriers for national markets or single market segments. Before the start of the SEPA project, national payments markets in Europe experienced differing intensities of competition and followed different paths of payment innovation. The general appetite in society for innovative payment solutions increased along with evolving technological possibilities and the increasing transparency of products available for the SEPA market. SEPA, therefore, had strong potential to create a favourable climate for innovative retail payment solutions to flourish.

In sum, SEPA together with the Payment Services Directive did therefore foster competition and created the conditions for greater innovation and more transparency in both pricing and choice of the services available to customers.

## 4 The ECB/Eurosystem role in the SEPA project

In principle, the Eurosystem's national central banks prefer to leave the processing of retail payments to the banking industry itself and mainly concentrate on helping to promote safety and efficiency. However, there have been two important factors which encouraged the national central banks to consider taking a more active role: i) the network characteristics of the retail payments and payment systems; and, related to that, ii) the banking industry's failure to deliver an integrated infrastructure and/or to go beyond the delivery of only basic services that have to be complemented by the individual players. (In this last scenario, smaller players may be left out of the game and national central banks could step in.)

The concept of network industries applies to a variety of sectors, such as telecommunications and computer software. The retail payments industry is indeed a

network industry, i.e. it is an industry where the benefits accruing to an individual market participant increase when other participants choose to do business in that network. These network effects may create obstacles to competition and innovation as it may be difficult for a new system to enter the market and compete with better technology given the need for a critical mass of users to recover costs. Such network effects may therefore lead to inefficient technology adoption. Cooperation is therefore essential to be able to create the conditions for competition. This need for cooperation among competing private entities, some of which may not be interested in increasing competition, created the need for central (public) coordination and for public-private cooperation. The creation of SEPA is based on the concept of “competition in the market” (i.e. competition on the basis of the same rules, standards and legislation for everybody) and not “competition for the market” (e.g. the BigTech platform initiatives).

Within this framework, the ECB acted as facilitator or catalyst. Regulations have played a fundamental role but did not exhaust the need for our catalyst role. Our progress reports provided guidance to the market on how to move ahead, we facilitated the dialogue between the EPC and the Directorate General Competition (DG COMP), and broadly provided support – especially at the beginning – to DG COMP, leveraging on our profound understanding of the reality facing banks in the SEPA project. Indeed, it is part of our mandate to ensure that European banks come out of this process as efficient and safe payment institutions.

The ECB also provided a helping hand to create, out of the many different national payment schemes, one pan-European scheme for two of the three main payment instruments (credit transfers and direct debits) and a common framework for cards in the SEPA project. This process also enabled the consolidation of national retail infrastructures into several, rather than one, SEPA-compliant pan-European infrastructures with competing operators.

The ECB also helped in assessing and coordinating the repercussions that different migration rates in different countries have across countries. This coordination has been important since, because of the interdependencies, a slow migration in one country could have had adverse effects on those countries where migration proceeded more quickly.

## 5 Two important lessons from SEPA: governance and need for appropriate communication

The achievement of appropriate governance posed a number of challenges. First, cooperation needed to be ensured among financial entities operating in a competitive market. Second, the needs and interests of the various stakeholders had to be adequately balanced and any potential conflicts of interest addressed. Third, the need to ensure the appropriate mix of regulation and self-regulation with a view to avoiding, on the one hand, legislative intervention that could “kill” innovation and development and, on the other, the failure of market forces to spontaneously implement the required/necessary measures. Last but not least, the need for the

deep involvement of a large spectrum of stakeholders and authorities relates to the fact that SEPA is not a purely economic initiative but it is intimately connected to the ambition of having a more integrated, competitive and innovative EU retail payment systems.

As a consequence, adequate governance structures with all the relevant stakeholders represented has been essential. For instance, end-users, i.e. consumer organisations, SMEs, merchants and corporate treasurers were not formally involved for some time and considered the EPC proposals for SEPA credit transfers, direct debit and cards to be insufficient for users to voluntarily migrate from national to SEPA instruments. The Eurosystem, in this case represented by the national central banks, facilitated the dialogue between different stakeholders at national level.

Against this background, in 2010 the European Commission and the ECB jointly established the SEPA Council, comprising representatives of the financial sector; large, medium and small firms; merchants; consumers; and public sector authorities. The SEPA Council promoted agreement on common solutions and on definitions of next steps for the implementation of the SEPA projects.

In 2013, the SEPA Council was succeeded by the Euro Retail Payments Board (ERPB), a strategic body with an even more extensive mandate and organisational setup. It provides guidance and facilitates the development of an integrated, innovative and competitive market for retail payments in euro in the EU.<sup>3</sup>

Turning to communication, its importance stems from the fact that the implementation of the SEPA in the banking sector does not automatically trigger the migration of users to these new services. There is a plethora of aspects which matter to users, but which were not addressed in the SEPA initiative. You can compare the aspects provided within the SEPA framework with the tip of an iceberg, and the missing aspects with the larger part of the iceberg which has remained invisible or out of scope, at least so far.

The warmth of the users' welcome to the new SEPA services, therefore, depended on the way the project was communicated to customers.

In particular, we needed to address three main issues to ensure appropriate communication.

First, a number of providers presented SEPA to customers in the second half of 2007 and early 2008, as an initiative imposed by the regulators that generated a lot of additional costs for the banking and payment industry and did not bring about much change apart from enhancing cross-border transactions. We considered this type of message as short-term oriented and a wrong assessment. We had to explain that the SEPA project is the vision of a common market, a landscape that will need to evolve further to meet the existing and evolving needs of users.

Second, the insistence on the fact that the SEPA direct debit was not attractive enough for a critical mass of users. We had to clarify that the scheme should have

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<sup>3</sup> Further details on the ERPB's mission and work can be found in Chapter 6.

been seen as the first step in replacing existing national schemes with a future-oriented scheme that was at least as efficient as the best national schemes to date; a scheme based on common standards which could also be used as a platform for services that the euro area will have in the future, such as electronic bill presentment and payment.

Finally, to expand a little more on potential practical difficulties, I cannot refrain from mentioning the fact that when the press gave the new International Bank Account Number (IBAN) the nickname, “IBAN the terrible”, a simple test carried out in a Frankfurt primary school showed that eight-year-old children thought it was “very easy” to use.

## 6 Recent developments: where are we going now?

The integration of the euro retail payments market has been a complex and time-consuming process. With the advent of digitalisation in all spheres of life, new challenges to the European retail payments market have been emerging. For the Eurosystem, one major challenge is to ensure that the introduction of innovative payment products and services does not see any return to fragmentation in the European market. De facto, most European providers' innovative retail payment solutions that have emerged in the last few years have primarily focused on national markets and lacked a pan-European approach.

Another challenge emerged from growing global competition. “Big tech” companies with strong brands and large customer bases have tapped into the growing retail payment volumes in Europe and offer attractive customer front-end solutions that function on a global scale. While openness to global competition is crucial in order to foster innovation, dependency on foreign payment solutions and technologies creates the risk that the European payments market will not be fit to support our Single Market and single currency, making them more susceptible to external disruption. Furthermore, payment service providers with global market power will not necessarily act in the best interest of European stakeholders.

To meet the rising challenges to European sovereignty in the payments market, a comprehensive retail payments strategy fostering competition and an innovative European ecosystem for payments is required. It should cover instant payments, the development of truly pan-European payment solutions, and pan-European harmonised electronic identity and signature systems in retail payments. Given that the transformation of the retail payments ecosystem brought about by digitalisation does not stop short of the means of payment, the euro, it should also cover analysis of the implications and risks of crypto assets/private sector stablecoins and investigation into the potential issuance of a digital euro. The European Commission’s Retail payments strategy for the EU and the Eurosystem retail payments strategy are complementing each other in providing guidance on these issues, fostering a competitive and innovative retail payments market capable of both meeting consumer demand and preserving European sovereignty.

# Chapter 2 – Legal and regulatory history of EU retail payments

Prepared by Maria Chiara Malaguti<sup>1</sup>

## 1 Payments at the crossroad between European Monetary Union and the Single Market

Tommaso Padoa-Schioppa said that a payment system consisted of “the set of instruments, procedures and connection circuits aimed at carrying out the passage of money from one operator to another. This is a real industry, the industry that produces the 'money transmission' service”.<sup>2</sup> This definition implies a holistic understanding of the sector, however, it is not a legal concept. Until thirty years ago, “money transmission services” was not an autonomous regulatory space either, either inside or outside Europe.

In the European Union (EU), the Second Banking Directive<sup>3</sup> and the Maastricht Treaty<sup>4</sup> were the first statutory documents specifically to recognise the payments system as an autonomous sector of (financial) activity. While the Second Banking Directive treated the handling of payments as one of the core activities of credit institutions, the Maastricht Treaty gave the task of promoting the smooth operation of payment systems to the European System of Central Banks (ESCB) in Stage Three of Economic and Monetary Union (EMU).

We have come a long way since then. The road has been a winding one, it has widened over the years and its inner features have changed considerably. These days, now that Stage Three has reached full maturity, the ESCB provides payment and securities settlement infrastructures, cooperates with market stakeholders to integrate financial markets in Europe and oversees financial market infrastructures and payment instruments to carry out its task of promoting “the smooth operation of payment systems”.<sup>5</sup> Moreover, the Eurosystem establishes oversight policies and corresponding standards for retail payment systems and payment instruments, as well as certain third-party service providers. It also acts as a catalyst for change, promoting efficiency in payment systems and, in the field of retail payments, migration to the Single Euro Payments Area (SEPA). Within this framework, the European Central Bank (ECB) has regulatory powers, exercised through legal acts as well as other legal instruments.

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<sup>2</sup> T. Padoa-Schioppa, *La moneta e il Sistema dei pagamenti*, Bologna 1992, p. 45 (original in Italian).

<sup>3</sup> Second Council Directive 89/646/EEC of 15 December 1989 on the coordination of laws, regulations and administrative provisions relating to the taking up and pursuit of the business of credit institutions and amending Directive 77/780/EEC (OJ L 386, 30.12.1989, p. 1-13).

<sup>4</sup> Treaty on European Union, Maastricht, 7 February 1992.

<sup>5</sup> Article 127 of the Treaty on the Functioning of the European Union (TFUE).

However, payments are also regulated outside of the EMU, within the EU at large. Albeit linked to monetary policy and financial stability, payments pertain to the realm of commercial transactions, as well as that of the provision of financial services, which are both regulated by the principles and rules of the Single Market. Within that context, which thus also extends to Member States that are not adhered to the EMU, efforts to harmonise domestic legislations and integrate systems and instruments are undertaken primarily by the European Commission<sup>6</sup>. As for financial institutions and services, over the years multiple legal instruments have been issued that covered various aspects relating to the execution of payments. The Second Banking Directive defined the handling of payments as a core activity of banks, the existence of pre-paid products provided by non-banks was then recognised and regulated as a financial product provided by specific institutions. It also gave full recognition of payment services as an autonomous financial service, which started the era of regulation of payment institutions as stand-alone financial institutions. In addition, it regulated instruments of payment, originally starting from purely cross-border transactions limiting free movement of goods and services, and going right up to the regulatory shaping of a truly integrated payments area (within SEPA).

Finally, supervision of financial institutions in the Union is now partially integrated and domestic supervisory authorities cooperate within a centralised system, the European system of financial supervision (ESFS), which was introduced in 2010. It consists of a number of bodies: i) the European Systemic Risk Board (ESRB) and ii) three European supervisory authorities (ESAs), namely, the European Banking Authority (EBA)<sup>7</sup>, the European Securities and Markets Authority (ESMA)<sup>8</sup>, and the European Insurance and Occupational Pensions Authority (EIOPA)<sup>9</sup>.<sup>10</sup> Whilst the national supervisory authorities remain in charge of supervising individual financial institutions, the objective of the ESAs is to improve the functioning of the internal market by ensuring appropriate, efficient, and harmonised European regulation and supervision. The overall objectives of the authorities are to maintain financial stability in the EU and to safeguard the integrity, efficiency, and orderly functioning of the financial sector of their respective competence. Among other things, ESAs develop market standards. Over the years, they have also regulated aspects of payments, harmonising prudential requirements and oversight across the Union.

It is within this articulated institutional framework that we can see the evolution of legal and regulatory aspects of retail payments in the EU, and assess whether a holistic approach can be evidenced through the raft of measures developed in the Union across institutions and over time. However, before navigating in more detail the history of regulation of payments within the Union, there is one point that needs to be focused on: the changing role of the ECB and the ESCB/Eurosystem in relation

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<sup>6</sup> As is well known, the European Commission issues various kinds of instruments. Regulations are general and apply directly in the whole EU territory, while directives request Member States to adopt legislation in their respective territories implementing the principles established in the relevant directive. Finally, the European Commission can adopt recommendations, which have no mandatory nature and usually serve the purpose of incentivising self-regulation.

<sup>7</sup> Regulation (EU) No 1093/2010 establishing the EBA.

<sup>8</sup> Regulation (EU) No 1095/2010 establishing ESMA.

<sup>9</sup> Regulation (EU) No 1095/2010 establishing ESMA.

<sup>10</sup> See also Omnibus' Directive 2010/78/EU amending existing financial services legislation to ensure that the new authorities can work effectively.

to retail payments. The Eurosystem's major task is to conduct monetary policy and ensure financial stability. At the beginning of its history, the Eurosystem did not specifically focus on retail payments, since these were not deemed to be directly related to either monetary policy or financial stability. However, the development of central banking, including outside of Europe, evolved to also cover retail payments, at least to a certain extent: when processing high volumes of (low value) transactions. In addition, retail payment systems may affect financial stability and involve systemic risk, as can be the case with payment instrument schemes. To the same extent, oversight of the payments ecosystem also includes, in modern central banking, a focus on competitiveness, which is clearly linked to effectiveness, as well as possibly financial inclusion. Consequently, although the major role in regulating retail payments in the EU remains with the European Commission and the ESAs (specifically, EBA), the Eurosystem (and the ECB within it) does play a role through its oversight function.

## 2 Intermediation in payments: from a core banking activity to an autonomous financial service

As referred to earlier, payment services were traditionally included in the core banking activities under the directive(s) on credit institutions<sup>11</sup>. When the market started evolving and non-banks entered the market mainly with pre-paid instruments, the European Commission adopted a directive on institutions issuing electronic money (e-money) instruments (“e-money institutions”, “EMI” and “EMI Directive”)<sup>12</sup>, which de facto assimilated those entities to banks and imposed very high standards on them. The market could thus not adequately develop, until the European Commission decided to regulate payment services in general, and irrespective of the (legal status of the) entity providing them. Non-banks were obliged to obtain a license as a “Payment Institution” (“PI”). Banks would not need to obtain a new licence to provide payment services but were still requested to abide by the same standards as non-banks.

Each Member State had to designate the competent authority to grant such licenses and ensure consistent treatment of all relevant entities. The EMI Directive was then upgraded to also regulate these bodies under the same terms.<sup>13</sup> The Payment Services Directive (PSD)<sup>14</sup> thus applied to banks, non-bank PIs, and those PIs providing stored-value products (i.e. EMI).

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<sup>11</sup> Currently in force is Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2006/49/EC.

<sup>12</sup> Directive 2000/46/EC of the European Parliament and of the Council of 18 September 2000 on the taking up, pursuit of and prudential supervision of the business of electronic money institutions.

<sup>13</sup> Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC.

<sup>14</sup> Directive No 2007/64/EC of the European Parliament and of the Council of 13 November 2007 on payment services in the internal market.

The PSD, as adopted in 2007, established the same set of rules on payments across the whole European Economic Area (i.e. the European Union, plus Iceland, Liechtenstein and Norway). It covered all types of electronic and non-cash payments, such as credit transfers, direct debits, card payments, mobile and online payments. The Directive laid down rules about the information that payment services providers must give consumers and about the rights and obligations linked to the use of payment services, as well as the groundwork for SEPA, which allows consumers and businesses to make payments under the same conditions across the euro area.

The very broad and ambitious scope of the PSD makes it one of the most significant and comprehensive pieces of financial services legislation in relation to the payments market. The automation of the European economy has steadily progressed since the implementation of the PSD, creating new players who offer new services for online payments. Many of these were outside the scope of the PSD and not regulated at EU level. To consider this new state of play, the Commission proposed a revised Payment Services Directive, known as “PSD2”. Its objectives are to make payments safer, increase consumer protection and foster innovation while ensuring a level playing field for all, including newcomers.

The PSD2 was published on 23 December 2015<sup>15</sup>, and had to be transposed by member states into national law by 2018. It intends to establish a clear and comprehensive set of rules that apply to existing and new providers of innovative payment services. These rules seek to ensure that these players can compete on equal terms, while strengthening consumers' trust in a harmonised payments market. The Directive also aims to open the EU payments market to companies offering consumer- or business-oriented payment services based on access to information about the payment account. The PSD2 covers in particular: i) account information services, which allow a payment service user to have an overview of their financial situation at any time, allowing users to better manage their personal finances; and ii) payment initiation services, which are services to initiate an order at the request of the payment service user with respect to a payment account held at another payment service provider.

PSD2 does not substantially change the conditions for granting authorisation as payment institutions, although payment institutions offering payment initiation services or account information services will be required to have professional indemnity insurance as a condition of authorisation or respectively registration.<sup>16</sup>

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<sup>15</sup> 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.

<sup>16</sup> The PSD2 was to be implemented in two phases. The first phase took place on 13 January 2018 and included reducing the maximum liability for unauthorised card payments irrespective of culpability, introducing the prohibition on surcharging and extending the Directive's scope to include non-EU/EEA currencies. Further details on the strong customer authentication requirement and on opening payment accounts for “third parties” can be found in the European Commission's Regulatory Technical Standards (RTS). These came into force in the second implementation phase, which began on 14 September 2019.

### 3 The contribution of payment instruments regulation: from harmonisation of cross-border payments to alignment of cross-border and domestic products, and integration through SEPA

Back in December 1993 – in other words, well before the PSD and at the same time as the Second Banking Directive and the Maastricht Treaty – the Commission proposed a Directive on the transparency and performance of cross-border payments. This was the beginning of a journey to regulate payments from a different angle than focusing on services: the harmonisation of rules for the use of payment instruments, with specific concern for consumer protection. The draft Directive laid down the minimum requirements needed to ensure an adequate level of customer information. It required that each institution supply its customers with clear written information about the services it provided, as a condition of making or receiving cross-border payments. Moreover, Member States were asked to promote the development of a code of conduct among institutions relating to the written information to be provided. A special body of rules was then to apply exclusively to cross-border credit transfers and required that institutions be obliged to execute credit transfers within a reasonable time. In the absence of agreement to the contrary, the institution was obliged to execute a transfer at the latest by the end of the business day following receipt of the payment order, while the institution of the originator was to be responsible to the originator for ensuring that the credit transfer be completed no later than the end of the sixth business day following receipt of the payment. In addition, the institution was obliged to execute the credit transfer for the full amount, unless otherwise agreed.

This proposal was adopted – although with some changes – in 1997.<sup>17</sup> The Directive no longer states transparency in cross-border payments to be its main aim, although its content is still mainly devoted to the conditions of banks' contracts with their customers. It applies exclusively to cross-border credit transfers (as opposed to other payment instruments, which were covered by the draft Directive) and excludes from its application certain types of purely interprofessional transfers.<sup>18</sup>

Although the aim of the Directive was only to impose certain minimum requirements of transparency and efficiency on the providers of payment services, it constituted the first step of a chain of legal measures aligning cross-border payment instruments to domestic ones. Indeed, in 2009 the Cross-border Payments Regulation introduced provisions which further promoted financial integration.<sup>19</sup> This had a significant impact due in particular to the introduction of some provisions, such as the pricing of euro cross-border direct debits which were aligned with those of local transactions (as was already the case for credit transfers and card transactions). This regulation

<sup>17</sup> Directive 97/5/EC of the European Parliament and of the Council of 27 January 1997 on cross-border credit transfers.

<sup>18</sup> Notwithstanding the banking sector's strong opposition to the imposition of an obligation to execute the transfer in good time, that provision has been retained; the time for execution in the absence of express agreement has in fact been reduced from six to five business days. The prohibition against double-charging has also been retained.

<sup>19</sup> Regulation (EC) 924/2009 of the European Parliament and of the Council of 16 September 2009 on cross-border payments in the community and repealing Regulation (EC) 2560/2001.

became applicable across all member states on 1 November 2009. In 2012, the provisions regarding direct debit interchange fees set out in the Cross-border Payments Regulation were amended by a regulation on technical and business requirements for credit transfers and direct debits.<sup>20</sup> In 2019, the regulation has been further amended by aligning the costs of cross-border payments in euro between euro and non-euro countries and increasing the transparency of charges related to currency conversion services across the Union.<sup>21</sup> Under this regulation, all people in the EU are able to transfer money cross-border, in euro, at the same cost as they would pay for a domestic transaction.

On the other side, the PSD2 was part of a legislative package that also included a regulation on multilateral interchange fees (the Interchange Fee Regulation). Applied jointly, the Regulation and the PSD2 limit the fees for transactions based on consumer debit and credit cards, and ban retailers from imposing surcharges on customers for the use of these types of cards. This is another quite significant step, not only because it covers payment instruments across countries and irrespective of these being used cross-border or domestically, but also because it responds to a more general debate – arising at international level and under many other legal systems – on the role of regulation on the structure and shape of the market, in particular (at that time) looking at prices of schemes and cooperation among providers in providing products involving two-sided markets. Indeed, it is usually a matter for competition authorities to deal with those kinds of issues.<sup>22</sup> However, many central banks and regulators consider that ex ante regulatory intervention is required when there is a risk of competitiveness being compromised or when anti-competitive behaviour might affect financial inclusion and limit modernisation.<sup>23</sup> Therefore, this was a novel step in payments regulation.

However, regulation by itself cannot address all issues. A concrete integration requires the market to share some common strategies and adopt some self-regulation measures. EMU and non-EMU member states take part jointly in SEPA. SEPA contributes to the integration of the internal market based around the

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<sup>20</sup> Regulation (EU) 260/2012 establishing technical and business requirements for credit transfers and direct debits in euro and amending Regulation (EC) 924/2009.

<sup>21</sup> Regulation (EU) 2019/518 amending Regulation (EC) 924/2009 as regards certain charges on cross-border payments in the Union and currency conversion charges.

<sup>22</sup> For a complete description of the EU legal and regulatory developments on retail payments, also consideration should be granted to the actual application of EU competition rules to the sector. The limited space of this contribution does not allow this analysis.

<sup>23</sup> The Commission has further adopted a few implementing and delegated acts. These are: i) Regulation (EU) 2017/2055 on regulatory technical standards for the cooperation and exchange of information between competent authorities relating to the exercise of the right of establishment and the freedom to provide services of payment institutions, ii) Regulation (EU) 2018/389 on regulatory technical standards for strong customer authentication and common and secure open standards of communication; iii) Regulation (EU) 2019/410 laying down implementing technical standards with regard to the details and structure of the information to be notified, in the field of payment services, by competent authorities to the EBA; iv) Regulation (EU) 2019/411 on regulatory technical standards setting technical requirements on development, operation, and maintenance of the electronic central register within the field of payment services and on access to the information contained therein. Equally, the Commission has established several legislative acts on AML. See also Regulation (EU) 2015/847 of the European Parliament and of the Council of 20 May 2015 on information accompanying transfers of funds and repealing Regulation (EC) No 1781/2006, and Directive (EU) 2018/843 of the European Parliament and of the Council of 30 May 2018 amending Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, and amending Directives 2009/138/EC and 2013/36/EU.

European Union, along with some other countries geographically close to the EU and linked to it by trade treaties.<sup>24</sup>

## 4 The third era of payments intermediation: when non-financial service providers offer an essential, yet stricto sensu non-financial component of the service. Basic accounts, Open Banking, and the role of customers' data in the new scenario

The implementation of the PSD2 relies on the six Regulatory Technical Standards (RTS) and the five sets of Guidelines related to PSD2 that the EBA has been mandated to develop. EBA has also adopted further guidelines related to the implementation of EU measures. These measures, originated by the EBA but then adopted by the European Commission, address the domestic authorities as well as the market.<sup>25</sup>

These new measures open the way to the further development of the payment ecosystem, as a result of innovation and the entry into the area of new non-financial institutions, which do not necessarily provide a per se financial service (do not directly hold funds for the purposes of the transfer of money) but still intimately participate in the payment service and are essential to it. These entities show that what was traditionally considered as a payment service in its entirety, can be divided up into various activities (initiation services, gateways, data aggregators, interfaces) that might even become economically predominant, that are often provided by non-financial entities, and that are fast evolving into different business patterns and affecting the structure of the market.

Among the most relevant rules within such a package, the strong customer authentication requirement of PSD2 and “Open Banking” deserve a mention. On 14 September 2019, the strong customer authentication (SCA) requirement of the PSD2 came into force. This makes it safer for consumers to pay for goods and services online and helps fight fraud. The SCA and common and secure

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<sup>24</sup> The legal framework for SEPA is based mainly on the PSD/PSD2, the cross-border payments regulation, and the Interchange Fee Regulation. The so-called “SEPA Regulation” is instrumental in the process.

<sup>25</sup> Regulatory Technical Standards on passporting under PSD2 (EBA-RTS-2016-08); Regulatory Technical Standards on strong customer authentication and secure communication under PSD2 (EBA-RTS-2017-02); Regulatory Technical Standards on payment card schemes and processing entities under the Interchange Fees Regulation (EBA-RTS-2016-05); Regulatory Technical Standards on home-host cooperation under PSD2 (EBA-RTS-2018-03); Regulatory Technical Standards and Implementing Technical Standards (ITS) on the electronic central register under the PSD2 (EBA/RTS/2017/10 and EBA/ITS/2017/07); Guidelines on internet payments security (EBA/GL/2014/12\_Rev1); Guidelines on the security measures for operational and security risks under PSD2 (EBA-GL-2017-17); Guidelines on complaint procedures under PSD2 (EBA-GL-2017-13); Guidelines on major incidents reporting under PSD2 (EBA-GL-2017-10); Guidelines on authorisation and registration under PSD2 (EBA/GL/2017/09); Guidelines on the conditions to be met to benefit from an exemption from contingency measures under Article 33(6) of Regulation (EU) 2018/389 (RTS on SCA & CSC) (EBA-2018-Op-04); Guidelines on the criteria on how to stipulate the minimum monetary amount of the professional indemnity insurance or other comparable guarantee under Article 5(4) of PSD2 (EBA/GL/2017/08); Guidelines on fraud reporting under the PSD (Consolidated version updated on 22 January 2020 -EBA/GL/2020/01).

communication (CSC) underpin the new security requirements of PSD2 and regulate the access by account information service providers and payment initiation service providers to customer payment account data held by account servicing payment service providers. The term “Open Banking” generally refers to the way in which banks can make data and services available via interfaces (generally application program interfaces – APIs) to authorise service providers or third parties who act on behalf of the customer who owns the account. PSD2 requires that all institutions offering payment accounts, enable access to regulated third-party providers. The SCA requirement is a pillar of Open Banking. Having been driven by regulation since January 2018, banks and other payment service providers in Europe are testing prototypes and beta versions of their new operating models, and some of them already have entire sets of open banking solutions, especially in relation to APIs. Along the same lines, in 2014 the European Commission adopted a directive that inter alia defines a framework for the rules and conditions within which Member States are required to guarantee the right for consumers to open and use payment accounts with basic features in the Union.<sup>26</sup>

These most recent legal and regulatory developments also show the new role that availability and exchange of customers’ data play in the information technology era.

We thus entered the third age of payments provision: we started from banking. Then regulation focused on non-bank financial providers. Finally, the fragmentation of payment services into a number of additional non-financial services made also these latter to be included in the overall regulation, whose presence must be taken into consideration when assessing the payments market's structure and exposure to risk.

## 5 The final pillar of the temple: from the focus on finality within payment systems to oversight over (SI)RPSs

The Directive on cross-border credit transfers was originally part of a package of measures which also included a proposal for a Directive on settlement finality (hereafter the “Finality Directive”)<sup>27</sup> which was adopted in 1998. This Directive opened a new chapter in the EU payments realm, in particular because of its scope. The Finality Directive did not cover bank-customer relationships, unlike almost all

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<sup>26</sup> Directive 2014/92/EU of the European Parliament and of the Council of 23 July 2014 on the comparability of fees related to payment accounts, payment account switching and access to payment accounts with basic features. A basic payment account includes services enabling all operations required for opening, operating and closing a payment account, as well as services enabling funds to be placed on a payment (current) account, services enabling withdrawals (within the EU) at a bank counter or cash machine, and execution of various payment transactions within the EU, such as direct debits and credit transfers, as well as payments with a payment card. The Directive establishes that anyone residing in the Union has the right to open a payment account with basic features in any EU country, provided that it complies with EU anti-money laundering rules. Whereas the obligation to offer basic payment accounts is imposed only on banks, the other provisions of the Directive apply to all payment service providers. It provides for several tools to make fees clearer for consumers, for instance by requiring that in each EU country there is at least one independent website that compares payment account fees that are charged by different banks. Moreover, it establishes a quick procedure for consumers who want to switch their account from one institution to another in the same EU country.

<sup>27</sup> Directive 98/26/EC of the European Parliament and of the Council of 19 May 1998 on settlement finality in payment and securities settlement systems. The Directive has undergone some amendments, but its main principles have not been affected. Its consolidated text is at 1998L0026 — EN — 17.09.2014 — 004.001 — 1.

previous measures, but was specifically devoted to inter-bank agreements. It aimed at reducing systemic risk by eliminating some of the legal obstacles particularly jeopardising the effectiveness of netting agreements within payment systems. In addition, it was clearly aimed at protecting mainly large-value transfers, since systemic risk is of much more serious concern for these operations than for retail transfers. Finally, for the first time, transfers of funds were taken into consideration, irrespective of their ancillary function of facilitating cross-border trade. The Directive addresses issues specific to the payments industry, which obviously also have a bearing on every individual obligation underlying each specific transfer order but does so with particular reference to the efficient and sound running of the payment industry as a whole (considering the systemic relevance of phenomena).

The Finality Directive is the first brick of oversight. Indeed, with the establishment of the ESCB, the era of oversight over the Union's payments (eco)system starts, which implies a holistic understanding of the sector: the regulatory space of payments includes all elements composing the payments ecosystem, and oversight is the main tool to consider and thus regulate them jointly, also because systemic risk cannot be detected except within such a holistic understanding.

Systems (that is to say, the infrastructure to transfer, clear and settle payments) are indeed subject to central bank oversight across countries and legal borders. This means that they are subject to a specific regulatory framework by way of designation of a system by the competent authority and the consequent imposition of standards to reduce risk, as well as subsequent monitoring by that authority. Oversight takes care of risk mitigation and focuses mainly on systems/infrastructure in the light of the systemic risk that they might take into the overall ecosystem. In 2012, the Committee on Payments and Market Infrastructures (CPMI) issued "Principles for financial market infrastructures" (PFMIs) which contained a number of principles for payment and security systems that were considered systemically important and which together with CSDs, CCPs and trade repositories were collectively referred to as "financial market infrastructures".

At that time, the Eurosystem had already adopted its oversight policy framework, but in June 2013, it implemented the PFMIs as the standards for Eurosystem oversight of all types of FMIs in the euro area under Eurosystem responsibility. The ECB further established a Regulation on oversight requirements for systemically important payment systems (SIPs)<sup>28</sup> which entered into force in August 2014.

The Eurosystem extended its oversight to retail payments in 2003. See Part 5 of this book for further details on the evolution of Eurosystem oversight of retail payment systems and payment instruments, schemes and arrangements.

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<sup>28</sup> Regulation of the ECB (EU) No 795/2014 of 3 July 2014 on oversight requirements for systemically important payment systems (ECB/2014/28).

## 6 Back to the Future: from e-money to digital through the lenses of the European Commission Action plan on FinTech and the dream of a Digital Single Market

The European Commission, since the very first directives on banking, has chosen to achieve harmonisation of Member States' domestic legislation not by giving a general definition of what a specific financial service implies or represents, but rather by listing the specific activities pertaining to that specific kind of service in an annex to the relevant directive. Thus, core and non-core activities of credit institutions were set out in an annex to the banking directives, as were the activities to be considered as "payment services". This approach helps the harmonisation process, since the scope of definitions may differ in Member States, however, it also has some drawbacks. A general definition focusing on the essence of a payment service could better help to address new services or activities that are not envisaged at a certain point in time but which develop later. This makes legislation more flexible, less prone to becoming outdated as the market changes and would support a functional approach. This choice revealed its limitations when Fintech and digital currencies entered the market, since these were not included in the scope of the PSD2, if we basically exclude initiation services and aggregators. This shortcoming, among other factors, justified a recent new assessment of innovation in the market.

In March 2018, the European Commission adopted an action plan on FinTech to foster a more competitive and innovative European financial sector.<sup>29</sup> The action plan sets out 19 steps that the Commission intends to take, on the one hand, to enable innovative business models to scale up at EU level and support the uptake of new technologies such as blockchain, artificial intelligence and cloud services in the financial sector; and, on the other, to increase cybersecurity and the integrity of the financial system. These initiatives mainly aim to enhance supervisory convergence toward technological innovation and prepare the EU financial sector to better embrace the opportunities created by new technologies. This should enable innovative digital finance solutions to be rapidly rolled out across the EU and benefit from the scale economies of the single market, while preserving financial stability and ensuring consumer protection.

The action plan is part of the European Commission's drive for a Digital Single Market. As set out in the Commission work programme, given the broad and fundamental nature of the challenges ahead for the financial sector, the Commission planned to propose a new digital finance strategy/FinTech action plan as well as a retail payments strategy that set out a number of areas that public policy should focus on in the coming years.<sup>30</sup>

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<sup>29</sup> FinTech action plan: For a more competitive and innovative European financial sector, 8 March 2018.

<sup>30</sup> The Commission priorities for 2019-24 also include "A Europe fit for the digital age - Empowering people with a new generation of technologies", based on the conviction that it is crucial that Europe grasps all the potential of digital age across the economy, including in the financial sector.

Two public consultations to that end were launched in April 2020.<sup>31</sup> Following the results of such consultations, in September 2020 the European Commission then adopted a new digital finance package, including digital finance and retail payments strategies, and legislative proposals on crypto-assets and digital resilience.<sup>32</sup> The new legislation on crypto-assets<sup>33</sup>, the “Regulation on Markets in Crypto assets” (MiCA) is meant to boost innovation while preserving financial stability and protecting investors from risks.

It is too early to draw any conclusions on the long-run effects of these new developments on the legislative and regulatory approach of the EU institutions and authorities. However, it seems reasonable to state that the focus on products helps to detach legislation from the institutional status of providers and reinforce the role of oversight of the activities, irrespective of the actor. To have a better understanding of the full picture, most recent works under the umbrella of the Single Market and the EMU need to be jointly considered.

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<sup>31</sup> Consultation document: A retail payments strategy for the EU, 3 April 2020; Consultation document: A new digital finance strategy for Europe/FinTech action plan, 3 April 2020.

<sup>32</sup> Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on a Digital Finance Strategy for the EU, 24 September 2020, COM (2020) 591 final.

<sup>33</sup> These are defined by the Commission in the legislative proposal as “a digital representation of values or rights that can be stored and traded electronically”.

# Chapter 3 – SEPA: setting the scene

Prepared by Monika Hempel, Francisco Tur Hartmann and Wiebe Ruttenberg<sup>1</sup>

## 1 Introduction

Until the late 1990s, making payments for goods and services traded across European borders was slower, more cumbersome and more expensive than making national payments. This was because retail payments were largely based on national payment instruments, national standards and national payment systems. For cross-border payments, these national instruments, standards and systems could not be used. What was missing was a single market for cashless payments that allowed payments for goods and services traded across Europe to be made at the same costs and in the same way as at the national level.

In 1999 the Eurosystem, in line with its statutory task of promoting the smooth operation of payment systems, drew up a set of objectives for cross-border retail payments, calling on the banking and payment service industry to fulfil these objectives within a given period.<sup>2</sup>

Additional pressure was put on the financial services industry by Regulation (EC) No 2560/2001<sup>3</sup> on cross-border payments in euro. This regulation eliminated price differences for end users between cross-border and domestic retail payments in euro, provided certain conditions were met (see also the chapter on the legal and regulatory history of EU retail payments).

The banking sector took action in 2002 with a roadmap entitled “Euroland: Our Single Payments Area!”, and set up the European Payments Council (EPC), the decision-making and coordination body of the European banking industry in relation to payments (see also the chapter on the EPC contribution to the future of payments in Europe).

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<sup>2</sup> European Central Bank (1999): Improving cross-border retail payment services in the euro area – the Eurosystem’s view, European Central Bank, Frankfurt am Main.

<sup>3</sup> Regulation (EC) No 2560/2001 of the European Parliament and of the Council of 19 December 2001 on cross-border payments in euro (OJ L 344, 28.12.2001, p. 13) – repealed by Regulation (EC) No 924/2009.

## 2 SEPA – its aims and achievements

Overall, the aim of the Single Euro Payments Area (SEPA) was to enable individuals, businesses and public administrations to make cashless payments in euro, throughout Europe, from a single payment account anywhere in Europe, using a single set of payment instruments as easily, efficiently and safely as at the national level.

For that purpose, the EPC created the SEPA credit transfer and the SEPA direct debit rulebooks and the SEPA cards framework (see also the chapter on the EPC contribution to the future of payments in Europe).

Given that SEPA was closely linked to the political and social goal of a more integrated, competitive and innovative Europe, it soon became clear that the actual migration to the use of SEPA instruments required the closer involvement of actors on the demand side, a broader governance structure and legislative support from the regulators. The Eurosystem contributed as a facilitator by promoting private sector action, helping to overcome coordination problems by organising high-level fora with the industry and demand side representatives, seeking to involve all relevant stakeholders and, in cooperation with the European Commission, setting public policy objectives.

The creation of SEPA is a good example of successful collaboration between regulators and the market, supported by strong governance. What initially began as a market-driven project by the EPC substantially broadened in terms of stakeholder involvement in the following years. To improve the governance of SEPA, in particular the involvement of corporates, consumers and merchants, the Eurosystem promoted the creation of a European forum for retail payments. This led to the establishment of the SEPA Council in 2010, which was succeeded in 2013 by the Euro Retail Payments Board (ERPBB) (see also the chapter on the Euro Retail Payments Board (ERPBB)).

While the harmonisation of the legal environment for payment services has been achieved mainly by means of the Payment Services Directive (PSD) (see also the chapter on the legal and regulatory history of EU retail payments), the harmonisation of rules and standards has been undertaken by the payments industry (see also the chapter on the EPC's contribution to the future of payments in Europe). The three pillars of sound governance, legal and technical harmonisation helped pave the way for the banking industry to deliver the SEPA credit transfer and SEPA direct debit schemes in 2008 and 2009 respectively.

To ensure that migration to the SEPA schemes was taking place in a timely manner, the Eurosystem drew attention to the need to set an ambitious but realistic end-date for the migration.<sup>4</sup> Subsequently, the SEPA migration end-date regulation was adopted by the European Parliament and the Council and entered into force in

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<sup>4</sup> European Central Bank (2010): Seventh SEPA Progress Report: Beyond theory into practice, European Central Bank, Frankfurt am Main.

March 2012.<sup>5</sup> The migration deadline for the euro area was set at 1 February 2014 and for non-euro area Member States at 31 October 2016. As of these dates, the existing national euro credit transfer and direct debit schemes were to be replaced by the SEPA credit transfer and the SEPA direct debit schemes.

Migration to SEPA for credit transfers and direct debits was a major milestone in European retail payments integration. SEPA migration for credit transfers and direct debits in euro has been achieved.<sup>6</sup> It has led to a number of improvements in terms of both the efficiency and the security of euro retail payments. Now, one payment account, one type of credit transfer and one type of direct debit suffice for making euro payments at home and abroad.

However, there has been no comparable integration process in the cards domain. To this day, consumers and merchants, but also banks and other payment service providers, still encounter obstacles or experience geographical differences when making and accepting card payments unless the card is provided by or co-badged with an international card scheme. The goal has not yet been reached as far as SEPA for cards is concerned, i.e. a harmonised, competitive and innovative European card payments area.

To achieve the above goal, better coordination among the relevant market players would be required, in particular in the area of card standardisation. However, multiple players continue to promote their services based on proprietary standards, thereby hindering progress. Their rationale is that migration towards harmonised standards has to be market-driven and justified by business case considerations. De facto, most existing national card schemes actually operate on a relatively low-cost basis, which has benefited their users. At the same time, this has constrained investment in the modernisation of services and prevented efforts towards achieving a pan-European approach.

While European cardholders are generally able to pay with one card all over Europe, the pan-European acceptance of cards issued under a national card scheme is almost entirely reliant on co-badging with an international card scheme. Increasingly, payment service providers only issue cards from international card schemes. Such an arrangement calls into question market efficiency in terms of costs, competition and governance, as European payment service providers have little or no influence on the market's development. In the past, attempts to establish a common European

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<sup>5</sup> Regulation (EU) No 260/2012 of the European Parliament and of the Council of 14 March 2012 establishing technical and business requirements for credit transfers and direct debits in euro and amending Regulation (EC) No 924/2009 (OJ L 94, 30.3.2012, p. 22). On 26 February 2014 Regulation (EU) No 248/2014 of the European Parliament and of the Council amending Regulation (EU) No 260/2012 was officially adopted, allowing an additional transition period of six months for the euro area.

<sup>6</sup> Regulation (EU) No 260/2012 of the European Parliament and of the Council of 14 March 2012 establishing technical and business requirements for credit transfers and direct debits in euro and amending Regulation (EC) No 924/2009 (OJ L 94, 30.3.2012, p. 22). On 26 February 2014 Regulation (EU) No 248/2014 of the European Parliament and of the Council amending Regulation (EU) No 260/2012 was officially adopted, allowing an additional transition period of six months for the euro area.

card payment scheme have failed, as national card schemes and banks did not see a viable business case in the short term.<sup>7</sup>

This is all the more deplorable because card payments are the big winners in the trend towards more cashless payments. Even before the COVID-19 pandemic took hold in 2020, card payments were the most used electronic payment instrument in Europe, with almost 87 billion transactions in 2019.<sup>8</sup> And yet the potential for increasing not only the use of cards, but the use of electronic payments in general in the EU has not been deployed by far. In comparisons with countries such as the United States, Australia and Canada, it is noted that the number of card payments per inhabitant there is more than twice as high as in the EU.<sup>9</sup>

### 3 SEPA and innovation, instant payments, European retail payments strategy

While the payments industry and the regulators have been working towards the full realisation of SEPA, technological, societal and economic changes related to digitalisation have created opportunities for the emergence of innovative retail payment solutions that can accommodate different payment situations and changing customer needs and expectations.

For the Eurosystem, one big challenge is to ensure that the introduction of innovative payment products and services does not reintroduce fragmentation into the European market. Proprietary innovative solutions competing for the market and/or solutions that, with increasing market adoption, continue to focus exclusively on a single national market are not considered the right way forward and may warrant public policy intervention.

With the launch of the SEPA instant credit transfer (SCT Inst) scheme in November 2017 (see also the chapter on the EPC's contribution to the future of payments in Europe), the tracks were laid for the rollout of instant payments in euro. Following the launch, a number of Clearing and Settlement Mechanisms (CSMs) became scheme-compliant and started providing clearing services for SCT Inst. The TARGET Instant Payment Settlement (TIPS) service, which was developed by the Eurosystem with the aim of providing pan-European reach for instant payments, went live in November 2018. TIPS offers final and irrevocable settlement of instant payments in euro at any time of day and on any day of the year in less than ten seconds. TIPS was developed as an extension of TARGET2, which provides an extensive network of participants across Europe that can be leveraged by TIPS. TIPS can settle instant credit transfers in euro as well as in other currencies.

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<sup>7</sup> See also European Central Bank (2019): Card payments in Europe, European Central Bank, Frankfurt a.M.

<sup>8</sup> For comparison, credit transfers amounted to 35 billion transactions, direct debits to 26 billion (Source: ECB Statistical Data Warehouse).

<sup>9</sup> Sources: ECB SDW, BIS/CPMI Red Book.

To make instant payments available to all citizens and businesses in Europe, the majority of European payment institutions need to adhere to the SEPA instant scheme and full pan-European reach needs to be guaranteed. The ECB has taken steps to ensure the pan-European reach of instant payments via TIPS by the end of 2021. At that point in time, any payment service provider in TARGET2 that adheres to the SCT Inst scheme will become reachable in TIPS, either as a participant or as a reachable party. Furthermore, ACH instant payment settlements will move from TARGET2 to TIPS.

However, even if we manage to achieve comprehensive adoption of the SEPA instant credit transfer scheme across Europe and full reachability, it is not enough just to provide the SEPA instant credit transfer as a faster alternative to the SEPA credit transfer. Progress is also required at the customer front-end, in particular for point-of-sale and online payments.

Increasingly, we find global technology firms, or “BigTechs”, taking the lead in customer front-end solutions. These companies have strong brands and a large customer base that can be leveraged for retail payment services. They are happy to tap into the growing payment volumes in Europe and around the globe, both in shops and in e-commerce.

While openness to global competition is crucial in order to foster innovation, excessive dependency on foreign payment solutions and technologies creates the risk that the European payments market will not be fit to support the Single Market and our single currency, making them more susceptible to external disruption, such as cyber threats. Furthermore, payment service providers with global market power will not necessarily act in the best interest of European stakeholders.

To meet the rising challenges to European sovereignty in the payments market, the Eurosystem has put in place a comprehensive retail payments strategy. Its main elements are the rollout of instant payments, the development of a pan-European payment solution and an investigation into the potential issuance of a digital euro (see the chapter on a digital euro).

One key component of the Eurosystem retail payments strategy is the full deployment of instant payments as described in the paragraph above.

Another key component of the European retail payments strategy addresses the need for pan-European payment solutions that allow consumers and merchants in Europe to make digital payments in different situations: in shops and restaurants, online, person-to-person, etc. To achieve this goal, we need the development of an industry-led, pan-European retail payment solution that facilitates instant, secure and inexpensive payments – both online and in brick and mortar stores. With the aim of fostering pan-European market initiatives for retail payments at the point of interaction (POI), in 2019 the Eurosystem formulated five objectives that any pan-European market initiative for retail payments would need to fulfil: pan-European reach and seamless customer experience, convenience and low cost, safety and security, European brand and governance, and global acceptance, with a focus on improving cross-border payments, especially those across EU borders.

2020 saw the launch of the European Payments Initiative, which seeks to replace national schemes for card, online and mobile payments with a unified card and digital wallet that can be used across Europe. To succeed, it will need to overcome the existing fragmentation of national card schemes with a view to covering the whole EU and offering a credible alternative to global players.

Besides the full rollout of TIPS and the development of an industry-led, pan-European retail payment solution, the Eurosystem retail payments strategy also encompasses, more generally, support for innovation and digitalisation and for an innovative European ecosystem for payments, as well as specific measures for fostering pan-European eID/eSignature solutions in retail payments and the improvement of cross-border payments, i.e. payments originating from outside the EU and/or flowing outside the EU.

# Chapter 4 – The EPC contribution to the future of payments in Europe

Prepared by Javier Santamaria, Gerard Hartsink and Etienne Goosse<sup>1</sup>

## 1 The European Payments Council (EPC): an early key contributor to SEPA

Since the introduction of the euro currency in 1999, European Union (EU) institutions have focused on the integration of the euro retail payments market. When the institutions launched the Single Euro Payments Area (SEPA) initiative, they expected the banking industry to contribute the resources required to develop pan-European instruments for electronic euro payments.

In response to these expectations, the European banking sector created the European Payments Council (EPC) in 2002. At the request of the EU authorities, the EPC – as one representative of European payment service providers (PSPs) – committed to develop, in close dialogue with all stakeholders, the harmonised electronic euro payment schemes needed to realise the political vision of SEPA.

## 2 EPC SEPA payment schemes

The SEPA project moved from preparation to practice in January 2008, when the EPC launched the SEPA Credit Transfer (SCT) scheme that enabled European PSPs to offer a core credit transfer service that could be used in the same way throughout SEPA for either single or bulk electronic euro payments.

In November 2009, the EPC launched two new direct debit schemes: one designed primarily for consumers (SEPA Direct Debit Core or SDD Core) and one exclusively for businesses (SEPA Direct Debit Business-to-Business or SDD B2B). The two schemes offer consumers and businesses across SEPA a convenient and secure means of paying bills in euro, whereby the biller collects money from the payer based on their prior approval and the sum is then credited to the biller's account without the payer's intervention.

November 2017 marked another major event in an increasingly instant world: the EPC launched the SEPA Instant Credit Transfer (SCT Inst) scheme, in which euro credit transfers are completed in ten seconds – or less – across SEPA.

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<sup>1</sup> Javier Santamaría is the Chair of the EPC since June 2012, Gerard Hartsink served as the first EPC Chair from 2002-2012 and Etienne Goosse is Director General of the EPC.

As a result, today, virtually all euro credit transfers and direct debits in SEPA are based on the EPC SCT and SDD schemes, thereby fully achieving one of the main goals of the SEPA vision.

### 3 ISO 20022: the language of payments in Europe

To efficiently and automatically exchange information and process payments in SEPA, financial institutions across the area have to speak the same technical language. Data formats are like languages – they can make or break the success of communication between people, or in this case, the players in a payment transaction. Both sides need to be able to understand one another for the payment to proceed smoothly from end to end. Therefore, the EPC SEPA payment schemes rely on global open standards to ensure that all stakeholders exchange data that is commonly understood throughout Europe. Previously, dozens of different standards were used in Europe.

The EPC provides the harmonised SEPA data formats for all its schemes. These formats specify how the data of a transaction (SEPA credit transfer or direct debit) has to be presented in IT systems in order to allow universal and automatic (“straight through”) processing by the various players.

The SEPA data formats rely on the global open standard ISO 20022 developed by the International Organization for Standardization (ISO). Not only is ISO 20022 increasingly used among financial institutions worldwide, it has also become the true language of payments in Europe. The EPC and European PSPs have pioneered the widespread adoption of ISO 20022, which made the migration to SEPA possible. In addition, the adoption of two other ISO standards (namely BIC<sup>2</sup> and IBAN<sup>3</sup>) were also key elements of the drive for standardisation across SEPA based on global standards.

### 4 The benefits of SEPA: making cross-border payments in euro as easy as national payments

The SEPA encompasses more than 529 million citizens and 25 million enterprises, and together with other categories of end-users, they make some 146 billion electronic payments every year. Thanks to the SEPA project, citizens and companies can use the same payment instruments – notably credit transfers and direct debits – when making euro transactions across Europe as when paying in euro in their home country. [Regulation \(EU\) No 260/2012](#) establishing technical and business requirements for credit transfers and direct debits in euro, and amending Regulation (EC) No 924/2009, commonly known as ‘the SEPA Regulation’, were

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<sup>2</sup> The Business Identifier Code (BIC, which is ISO standard 9362). A BIC is made up of several characters identifying a PSP (including a country code) and potentially its branch.

<sup>3</sup> The International Bank Account Number (IBAN, which is ISO standard 13616). An IBAN is composed of a country code, check digits and a Basic Bank Account Number (BBAN).

instrumental in the SEPA process as they set common rules and mandatory end-dates for the migration from legacy euro payment instruments to SEPA instruments.

**Simplicity, convenience and cost-effectiveness** are the three core benefits of SEPA. Consumers can rely on one payment account to make euro payments throughout Europe. Equally, enterprises see **increased business opportunities** and can more easily access the broader European market. They **save time and money** because they do not have to deal with multiple payment standards for euro payments and can choose from a broader range of service providers covering the whole of Europe.

*“Though the EPC is invisible to end-users, it is instrumental in making euro payments via credit transfers and direct debits seamless throughout SEPA.”*  
(Gerard Hartsink, former and founding EPC Chair)

## 5 SEPA’s “state of play”

The area in which the EPC SEPA payment schemes are available is broader than the EU. The geographical scope of the SEPA schemes currently covers **36 countries**: the 27 EU Member States plus the United Kingdom (UK), Iceland, Norway, Liechtenstein, Switzerland, Monaco, San Marino, Andorra and Vatican City State.

**In this context, it is worth highlighting the fact that the EPC Board** approved the continued participation of UK PSPs in the SEPA schemes after Brexit. Although the UK became a non-EEA SEPA country as of 1 February 2020, **UK PSPs will continue operating within the scope of the SEPA schemes** as long as the UK continues to **comply** with the relevant SEPA scheme participation criteria that ensures a regulatory level playing field within SEPA.

Every year, over 43 billion payment transactions make use of one of the four SEPA payment schemes thanks to the support of about 4,000 PSPs who participate in one or more SEPA schemes.

## 6 Evolution of SEPA

The primary SEPA objective was the full migration to the SEPA credit transfer and direct debit schemes that occurred in a few steps between August 2014 (euro area) and November 2016 (outside the euro area). But this was not the end of the SEPA process, as these schemes must dynamically evolve in line with the market.

To that end, the EPC SEPA payment schemes are updated every two years to **reflect market needs** and **evolutions in the technical standards** developed by international standards bodies. This development is guided through **a transparent change-management process** that is open to all stakeholders, who can submit change requests and participate in the public consultation on all change requests received.

In line with its commitment to transparency, the EPC publishes its position on each change request for the public consultation and on all comments received during the public consultation, so that all stakeholders know why their change request propositions or comments were taken forward or not followed.

The completion of the migration to the SCT and SDD schemes did not conclude the SEPA project, for other reasons. EU regulators expected **further pan-European harmonisation in the area of card standardisation, which the EPC initiated, but in 2016, the EPC handed the maintenance of the SEPA Card Standardisation Volume to a new multi-stakeholder association, the European Cards Stakeholders Group (ECSG), of which the EPC is a member representing the PSP sector.**

**Another area requiring further harmonisation was mobile** (including person-to-person) **and online payments**. Therefore, in February 2019, the EPC launched the SEPA Proxy Lookup (SPL) scheme, aiming to facilitate interoperability between participating payment solutions by enabling the conversion of a proxy (i.e. mobile phone number or e-mail address) into a payment account identifier (currently an IBAN) across SEPA. The SPL scheme is also subject to a change management process that is structured, transparent and open. The second version of the SPL scheme rulebook was published in March 2020.

The latest EPC SEPA payment scheme – SCT Inst – continues to grow, and according to the latest data published in May 2021, now includes 2,318 PSPs (59% of all SCT scheme participants) from 23 countries in Europe. The 59% of PSPs that have already joined the scheme have the most significant payment volumes in their countries. In the euro area alone, the proportion of PSPs participating in the SCT Inst scheme is now close to 70%. The number of SCT Inst scheme participants will continue to grow over the coming quarters through a process of natural adoption as shown in Figure 1.

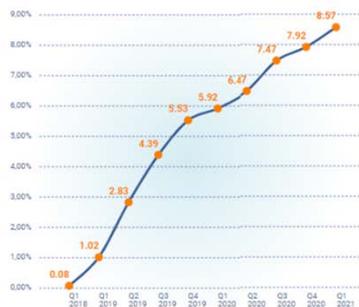
**Figure 1**

Participation of PSPs in the SEPA Credit Transfer (SCT) scheme

SEPA INSTANT CREDIT TRANSFER SCHEME

**2,318 payment service providers  
have already joined the scheme:  
59% of European PSPs.**

ESTIMATED SHARE OF SCT INST VOLUMES IN  
TOTAL CT\* VOLUMES



\* SCT + SCT Inst.



- At least 1 SCT Inst participant and a majority of payment accounts in the country
- At least 1 SCT Inst participant but no majority of payment accounts in the country
- No SCT Inst scheme participants in the country

\*SCT Inst scheme largely enumerates those having the most significant volumes in their countries.

Note: The estimated relative share of SCT Inst volumes in total CT (SCT+SCT Inst) volumes and the map of the countries where PSPs are already offering SCT Inst services.

Like the other EPC SEPA schemes, SCT Inst needs to evolve continually to meet market demand. The SCT Inst scheme has recently gained new features like the repayment functionality (effective in November 2019) and an increase in the maximum amount to €100,000 (from €15,000), which became effective on 1 July 2020. This increase will make SCT Inst more attractive for B2B payments.

In addition, the EPC grants licences enabling the use of the building blocks of the SCT Inst scheme (and the other SEPA schemes) for non-euro transactions, thereby fostering European harmonisation beyond the euro (see Figure 1).

Finally, it is worth highlighting the EPC's ongoing development, in partnership with stakeholders, of a SEPA Request to Pay (SRTP) scheme that complements the SCT and SCT Inst schemes across a broad range of use cases. On 30 November 2020, the EPC published the first version of its SRTP scheme rulebook covering core functionalities. The effective date of this rulebook is set to 15 June 2021. SEPA: a never-ending story?

In these exciting times, digitalisation is continuously transforming every aspect of our society and economy, and payments are no exception. However, there are still payment aspects and contexts where harmonisation could be furthered or where "new fragmentation" can be avoided. This is why the EPC continues to work on improving the integration, ease, convenience and security of payments for European citizens, businesses and public administrations.

The EPC believes that European PSPs will remain key actors in payments if they proactively embrace these changes while bearing customer needs and experience in mind.

## 7 Dialogue with stakeholders

The EPC's goal is to contribute to harmonised payments in SEPA in cooperation with stakeholders and regulators – a goal that ultimately supports European competitiveness and innovation. The mandatory migration to SEPA euro credit transfers and direct debits has been completed but other areas in payments require further efforts to harmonise standards, rules and practices and remove any barriers to an integrated and innovative European payments market. To support and promote constant European payments integration and development, the evolution of EPC SEPA schemes is organised with the close involvement of a broad range of stakeholders at European level in order to truly reflect market needs.

The EPC actively participates in multi-stakeholder bodies like the European Central Bank's Euro Retail Payments Board (ERPB) and supports its activities – notably by assuming the secretariat's role for its working groups. The EPC also regularly establishes and facilitates multiple stakeholder groups to foster pan-European interoperability and standardisation in domains such as mobile payments, Electronic Invoice Presentment and Payment (EIPP) and Request-to-Pay (RTP).

## 8 Security and fraud prevention

The EPC advocates security awareness and strongly supports fraud prevention among the various stakeholders in the payment ecosystem, thus maintaining a high level of trust in payments and, in particular, in the SEPA schemes. This is done by highlighting and helping to address potential risks to the scheme through tools such as an annual Payment Threats and Fraud Trends Report and Risk Management Annexes that are available to scheme participants. Security efforts should never slacken, as no ultimate victory can be claimed: this is why the EPC considers the monitoring of security threats and fraud prevention as critical on-going activities requiring the close cooperation of all industry actors – including public authorities.

## 9 SCT Inst – a potential game-changer for European payments

To address the need for harmonised real-time payments in euros, the EPC developed the SCT Inst scheme, offering many benefits to all payment stakeholders, be they end-users or PSPs.

*“SCT Inst marks a major change in European payments and offers a tremendous opportunity to PSPs to satisfy their customers in the digital age.”*

(Javier Santamaria, EPC Chair)

An open-ended list of SCT Inst use cases demonstrates all the situations where instant payments could bring additional benefits to payers and/or payees – for example, buying goods from another consumer; purchases from online stores; immediate reimbursement by a merchant of a good returned by a consumer; payment of insurance claims; payment of tax, fines or penalties, etc. SCT Inst enables PSPs to introduce new services that can conveniently cater for these new use cases by drawing on instant payments and their existing internal instant infrastructure. Each PSP chooses its own solutions and business models.

In particular, PSPs have the potential to develop solutions in the person-to-person and person-to-business segments in situations where cash and cheques are still used. Moreover, these solutions would reduce the cost of managing cash and cheques, which are the most expensive means of payment at the level of the entire economy. They could further facilitate electronic and mobile commerce payments and avoid the physical exchange of payment instruments and contact with acceptance devices for face-to-face transactions.

Additionally, the 24/7 availability of funds can help business customers improve their cash-flow management and reduce their need for external financing. Similarly, instant payments can act as a springboard for PSPs to develop other 24/7/365 financial services and products to better serve their customers and attract new clients.

## 10 Building the future of European payments

Today's payments landscape is characterised by the confluence of several key drivers for change in the payments market, such as regulations – in particular, the revised EU Payment Services Directive (PSD2). Other key drivers include the growth of the use of mobile, wearable and connected devices and objects; the importance of data; the impact of APIs on payments; the emergence of new players and the expansion of e-commerce. This conjunction should reshape payment markets over the coming years and transform interactions between the various players.

The desire for speed, convenience and security are the most crucial factors in the success of new payment technologies or methods. A seamless and user-friendly experience is critical in this regard. The SCT Inst and new non-payment schemes supporting SCT Inst, such as the SPL and the future SRTP schemes, can help European PSPs respond to their customers' evolving payment needs.

The market evidence is that new payment methods like SCT Inst and other innovative solutions are being progressively developed and adopted. The EPC believes that payments will, in the years to come, become faster, more mobile and even more “invisible” as they become increasingly integrated into the purchasing transactions themselves.

Obviously, new payment services and new players are expected to emerge and develop, but the EPC expects that existing European PSPs will be able to compete successfully by rapidly offering safe and convenient mobile, real-time payments to their customers.

In conclusion, the EPC has been and remains at the forefront of the modernisation of European retail payments. The SCT Inst scheme, coupled with the development of new SEPA payment-related schemes and other initiatives that augment the potential of real-time payments, will make payments more convenient and efficient for European consumers, merchants, companies, public administrations and PSPs, and ultimately enhance the competitiveness of the European economy. These achievements would not be possible without the active contributions of all PSPs and other stakeholders.

# Chapter 5 – The Euro Retail Payments Board (ERPB)

Prepared by Monika Hempel and Karine Themejian<sup>1</sup>

## 1 Organisation

The ERPB is a strategic body that provides guidance and facilitates the development of an integrated, innovative and competitive market for retail payments in euro in the EU. It also provides recommendations on work priorities, including standardisation needs. The ERPB is composed of high-level representatives from the supply and the demand side of the retail payment market. They have the authority to take decisions on behalf of the sectors they represent. On the supply side, there are representatives of the banking community, payment institutions and e-money institutions. On the demand side, there are representatives of consumers, retailers with physical premises, internet retailers, businesses/corporates, small and medium-sized enterprises and national public administrations. The ERPB is chaired by the ECB.

In addition to the members, five national central banks (NCBs) representing the Eurosystem and one NCB representing the non-euro area EU NCB community takes part in the ERPB meetings on a rotational basis. Furthermore, the European Commission is invited to join the ERPB as an observer.

The ERPB has no formal powers to impose binding measures. The associations represented by the ERPB members follow -up the ERPB's common positions, guidance or statements on a voluntary basis.

The ERPB relies on the link between its members (European associations) and their respective national constituents (associations and stakeholders at the national level) for receiving national market feedback and for the transmission of relevant information. EU NCBs also act as a link between the ERPB and national payments committees.

For the execution of its mandate, the ERPB may establish working groups for a limited period of time for dealing with specific work priorities. Several groups may operate in parallel, depending on the work priorities.

The ERPB reports annually on its activities, common positions, guidance or statements adopted in the previous year and on its objectives and deliverables for the following year. Full documentation is published on its website ([www.erpb.eu](http://www.erpb.eu)).

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<sup>1</sup> Monika Hempel is a Principal Communication Campaigns Expert in the ECB's Market Infrastructure Support Division. Karine Themejian is Deputy Head of the ECB's Market Integration and Innovation Division.

## 2 SEPA follow-up: post-migration issues, e-mandates, card standards and contactless proximity payments

Since its creation the ERPB has covered a range of topics that drove progress towards integrated, innovative and competitive retail payments in euro in the EU. Work undertaken includes SEPA credit transfer and SEPA direct debit post-migration issues, electronic mandates for SEPA direct debits, technical standards for card payments and mobile and card-based contactless proximity payments.

In its work on post migration issues related to SEPA credit transfer and SEPA direct debits, the ERPB identified and addressed remaining issues related to SEPA credit transfers and direct debits since the mandatory migration deadline on 1 August 2014. One major issue identified was IBAN discrimination in particular with regard to SEPA direct debit, i.e. there were payees that did not accept payment accounts located in other countries. The ERPB gave a number of recommendations to various stakeholders to address this issue. Other recommendations referred to further harmonisation of payment messages used in the customer-to-bank and bank-to-customer space, the implementation of the IBAN-only rule which requires payment service providers to execute payment orders across borders without customers having to provide the BIC of the payee, and the extension of remittance information available to payment service users.

With regard to pan-European e-mandates for SEPA direct debits, the ERPB gave a number of recommendations to various stakeholders. These recommendations were aimed to ensure that creditors accepting electronic mandates adapt and offer at least one solution for accepting mandates from debtors using a non-domestic payment account. In addition, while preserving the choice for debtors and creditors concerning the way they give and accept electronic mandates, there was a need for an incentive for creditors to move towards solutions with proper debtor authentication and mandate authorisation. In this regard it was deemed important that all stakeholders, but especially creditors, are clearly informed and aware of the possible consequences of using weak customer authentication.

While the work on issues related to SEPA credit transfer and SEPA direct debit brought significant progress, a true SEPA for cards has not been achieved yet (see also chapter on SEPA: setting the scene). National card schemes attain pan-European reach only by means of co-branding with international card schemes. The presence of multiple country or card scheme-specific requirements and implementation specifications (so-called “technical standards”) which are not interoperable constitute a barrier to European integration and generate inefficiencies in the payments market.

The European Cards Stakeholders Group, upon invitation of the ERPB, continues to promote the implementation of harmonised standards for payment cards in Europe.

### 3 Fostering retail payments innovation: instant payments, person-to-person mobile payments, e-invoice presentment and payment, request-to-pay

Early on, the ERPB has identified the need for instant payment solutions offered to end users in euro to be developed at the pan-European level. In 2015 the ERPB invited the EPC to develop a scheme based on the SEPA credit transfer (SCT) for instant payments. As a result, the SCT Inst Scheme was successfully launched on 21 November 2017 (see also section on The EPC's contribution to the future of payments in Europe). The ERPB welcomed this major step forward for pan-European instant payments and strongly encouraged the supply side of the industry to keep up the momentum towards implementing the SCT Inst Scheme to make instant payments in euro increasingly available to end users at pan-European level.

The ERPB monitors the roll-out and implementation of instant payments and the EPC provides regular status updates on the implementation of the SCT Inst scheme, including an overview of the percentage of payment service providers adhering to the scheme as a share of total SEPA credit transfer (SCT) adherents in each SEPA country.

According to the EPC, the number of declared SCT Inst scheme participants amounts to 2,318, representing 59% of all SCT adherents in all SEPA countries (see also section on The EPC's contribution to the future of payments in Europe). The EPC highlighted some implementation issues, in particular the incomplete compliance of scheme participants with the full reachability requirements of the SEPA Regulation and of the SCT Inst scheme Rulebook, in part due to incomplete interoperability at infrastructure level, and the insufficient reachability of beneficiary banks, with some beneficiary banks not processing incoming SCT Inst transactions for all of their payment accounts. Another major reason for the unsuccessful processing of cross-border SCT Inst transactions are sanctions screening obligations at the beneficiary PSP. Measures taken to address these implementation issues are discussed in the section on SEPA: setting the scene.

In 2015, the ERPB endorsed the vision of allowing any person to initiate a pan-European person-to-person (P2P) mobile payment safely and securely, using a simple method with information the counterparty is prepared to share in order to make a payment. Payment service providers (PSPs) offering P2P mobile payment services are expected to make use of existing schemes and standards as far as possible (i.e. SEPA payments and IBANs). Moreover, a harmonised process was to be created to allow P2P mobile payment data (e.g. mobile phone numbers or email addresses and IBANs) to be exchanged between local solutions across borders.

Based on these expectations, a SEPA Proxy Lookup (SPL) service was developed and launched in 2019. The SPL service allows customers to use their mobile device to transfer money from their bank account to another individual's account across Europe without having to exchange payment information, such as IBAN. The SPL scheme is managed by the EPC.

Due to a lack of interoperability among national mobile payment solutions beyond the proxy lookup functionality, the lack of a strong business case, lack of awareness, and, more generally, lack of take up of instant payments as well as pricing and a reluctance to share customer data, scheme participation is low. Thus, scheme manager and service operator are taking steps to increase the attractiveness of the SPL scheme with more advanced functionalities.

The ERPB supports the harmonised take-up and integration of e-invoice presentment and payment (EIPP) at the pan-European level. The EPC created an ISO 20022 set of EIPP servicing messages. From a broader perspective than EIPP services, the EPC has analysed requirements for the concrete and rapid exploitation of the Request-to-Pay (RTP) functionality which allows a payee to request the initiation of a payment from a payer in a wide range of physical or online payment situations. In 2020 the first version of the EPC's SEPA Request-To-Pay (SRTP) Scheme Rulebook was published (see also section on The EPC's contribution to the future of payments in Europe).

#### 4 Work in progress: SEPA application programming interface (API) access scheme, instant payments at point of interaction (POI)

Understanding the requirements of the Payment Services Directive (PSD2) vis-à-vis account servicing payment service providers (ASPSPs) – typically banks – to provide third-party providers (TPPs) – historically non-banks – with access to their online payment accounts without the need for any contractual relationship for a defined and limited set of payment services and functionalities through at least one interface as a first step towards open banking, the ERPB agreed to move forward in that direction by broadening the services and following a non-regulatory coordinated approach where mutual interests of the stakeholders could be met for the general benefit.

Its goal was to define the key elements of a possible SEPA API Access Scheme to enhance the benefits of and go beyond the PSD2 baseline for the provision of innovative and competitive payment initiation services (PIS) and account information services (AIS) in an integrated European market. Such a scheme would be the best approach to unlock the opportunities beyond the PSD2 with a fair distribution of value and risk between the actors.

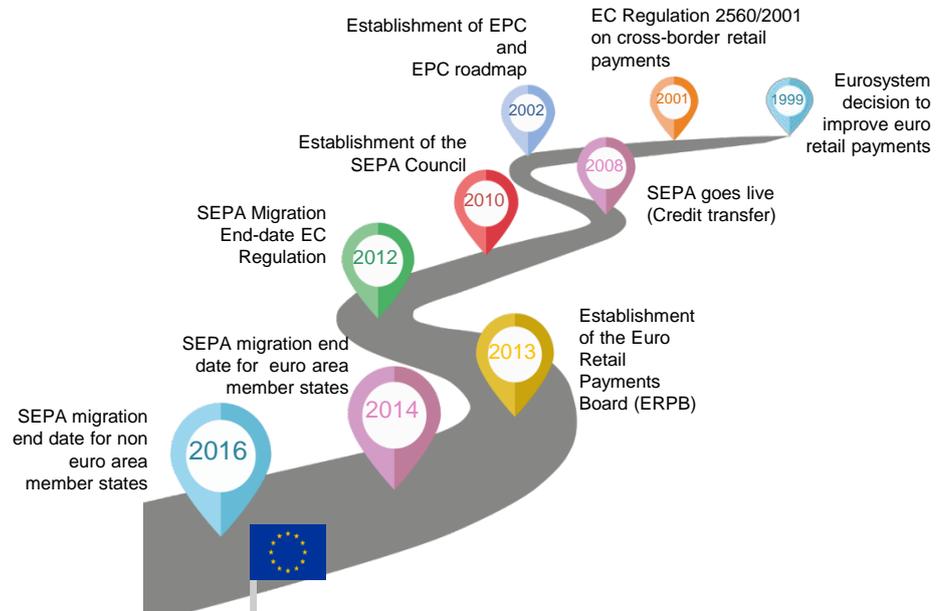
In 2020, consensus on the principles how to progress with the work on a SEPA API access scheme was reached. This consensus is based on the recognition of the revised Payment Services Directive (PSD2) as the legal baseline and the commercial baseline that any service or functionality offered by account-servicing PSPs that goes beyond their legal obligations can be considered as a value-added service in the context of a SEPA API access scheme.

To develop pan-European instant payment services at the point of interaction (POI), the ERPB initiated work on a framework for interoperability of instant payment services at the POI. This framework is based on a “hub” approach, i.e. a centralised

or decentralised infrastructure that enables interconnectivity between instant payment service providers. The ERPB will consider in 2021 whether to conduct further work on a dedicated framework to manage the interoperability rules and appropriate governance for instant payments at the POI.

In conclusion, in the course from its launch at the end of 2013 until the present, the ERPB has established itself as a driving force in the complex process of fostering the integration, innovation and competitiveness of euro retail payments in the European Union. Bringing together the supply and demand sides of the euro retail payments market under a sound governance structure and obtaining the commitment of its members should ultimately benefit the users of retail payment services that we all depend on in our daily lives.

# Single Euro Payments Area (SEPA) step by step timeline





## Part 3

# The financial integration of EU post-trade systems

# Chapter 1 – The history of European financial services integration over the last 20 years

Prepared by David Wright<sup>1</sup>

## Introduction

Diana, Godfried and Judith have provided excellent historical testimonies about the difficult and unfinished European work to build fit-for-purpose, efficient and integrated financial market infrastructures in the EU and all of them played major roles advancing these very complex dossiers.

Alberto Giovannini was indeed the intellectual force behind many of these initiatives. He had an astonishing breadth and depth of thinking, and a rigorous academic perspective that I have rarely witnessed in my professional life. His ability to link strategic concepts and ideas was a great gift. A charming, brilliant man who is much missed. He and Mario Nava were the powerful driving force on these topics.

My modest contribution to this volume, is a few personal reflections on the process of European financial integration in a broader sense, reflecting the fact that I have been at this particular “coalface” for most of the last 20 years.

At the end of the 1990s and as the arrival of the euro beckoned some Member State governments began urging the integration of EU capital markets as an essential complement to maximise the benefits of the single currency. Two countries in particular stand out in my mind: France – offensively – who were the leaders of this “peloton”; and the United Kingdom – defensively – who set about minimising any possible damage to or interference with the City of London. Germany bridged the two.

Under the French Presidency, at the end of 2000, Finance Minister Laurent Fabius managed to get agreement to set up the Lamfalussy group to pilot the way forward. The Commission was extremely anxious to provide the Secretariat and I was fortunate to become the rapporteur, aided by Pierre Delsaux, an outstanding lawyer and a member of my team in the Directorate General Internal Market and Services (DG MARKET). At the same time the Commission was anxious to progress its Financial Markets Action Plan, a cherished list of 42 measures it wanted to see adopted, to get the European financial integration process moving forward. There was a great deal of sense in this, since there was practically nothing on the European statute book at the turn of the century apart from the early, simplistic Basel

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<sup>1</sup> David Wright was Director and later Deputy Director General of the European Commission Directorate General Financial Services between 1999 to 2012. Among other things, he led all the work on the integration of financial market infrastructures.

bank capital rules, the investment services directive that had not opened cross-border securities markets and a few rather basic company law provisions.

The Lamfalussy report on reflection was the catalyst that set the institutional framework foundations for future European financial market integration. We ended up with a four-level process, the nomenclature of which remains partially with us today. Level 1 was key – setting in the directives and regulations, the high-level principles of the European rulebook to be decided by codecision. Level 2 involved the development, on the basis of a Commission mandate, of the granular draft regulatory rules by European regulators, the Committee of European Securities Regulators (CESR), etc., which, due to the Moroni judgement of the European Court of Justice (ECJ), could only be legally implemented by the Commission. Level 3 was coordination among national regulators to ensure consistent approaches, whilst Level 4 involved strengthening implementation and enforcement to ensure a level playing field and a single rulebook.

The European Parliaments' Committee on Economic and Monetary Affairs (ECON) disliked and distrusted this construct, fearing its new and emerging regulatory powers would be diminished. The Commissions' own legal service was also extremely formalistic and feared a weakening of the Commissions' right of initiative and replication to other sectors if the four-level model was implemented. Industry was watchful, but not entirely convinced. It took exceptional Commission drafting of an explanatory, compromise political text, read out verbatim by President Prodi in the European Parliament plenary session, to convince Parliament that the Lamfalussy process, with some institutional safeguards, merited political adoption. There was one crucial word that Pierre Delsaux found to break the deadlock. It was "s'efforcera", la Commission "...s'efforcera de prendre la plus grande compte de l'avis du Parlement...". This word did the trick.

Work then intensified on the basis of the FSAP and the "new" institutional framework. The Commission made a bad mistake in its first post-Lamfalussy directive proposal on prospectuses, by not consulting widely enough and coming up with a poor, rushed proposal. The severe criticism that followed was painful, but justified. The Commission never made the same mistake again. After all, thorough consultation was at the heart of the Lamfalussy report and a personal priority of Alexandre Lamfalussy himself. An inauspicious start.

However, over the next few years matters were settled, agreements began to be struck – on market abuse, transparency, accounting standards, MiFID and a much-revised prospectus directive, etc. The FSAP (with a macro-deadline of 2005) seemed to be working as far as measures being agreed on time, even though the outcomes were not always optimal. The 2005 deadline was important.

On infrastructures, progress was much slower as my colleagues here have demonstrated. In my view it was completely fallacious to believe that a Code of Conduct could ever solve the deep-seated problems and conflicts of interest that existed. This flawed approach reflected not just Commissioner McCreevy's deep suspicion of European legislation but also his lack of trust in his officials. It was a failure.

From 2005 onwards until the financial crisis of 2008 the integration process continued. There was a sense that the EU was indeed bedding down some important foundational elements, such as work on Solvency 2 and MiFID, which began to have important cross-border trading impacts on securities markets. Relations with the United States in this period were constructive based on the EU-US financial markets regulatory dialogue which had established a basis for mutual trust on both sides. Work almost began on a mutual recognition agreement in financial services between the EU and the United States, and then the massive financial crisis struck. All bets then were off, as all hands were forced on deck to repair, urgently, the deep flaws in global financial regulation, notably banking where the Basel Committee agreements had left many highly leveraged banks woefully short of capital and, in addition, banking regulators with wholly inadequate crisis management systems.

Over-the-counter (OTC) derivatives markets, massive and highly leveraged, were largely unregulated, and a crucial part of the global and European regulatory recovery package was to drive these huge OTC markets onto transparent exchanges, and to have the transactions cleared, settled and reported, to reduce systemic leverage and danger. Overall, this has been a success as has the installation of far more effective crisis management systems in the EU, backed up by the impressive Single Supervisory Mechanism (SSM) in the European Central Bank (ECB).

Institutionally, as the crisis worsened the Commission, inevitably many Member States and the European Parliament realised that more robust European institutional structures were necessary to help avoid any repetition of the economic and financial carnage of the 2008 crisis. They turned to by far the most eminent, experienced European financial expert and leader to chair it, Jacques De LaRosière. Once again, I had the great privilege to be rapporteur, supported this time by Martin Merlin of DG MARKT who made an outstanding contribution to the Committees' work.

The outcome of this difficult task was the De LaRosière report proposing the setting up of three European Supervisory Authorities (ESAs) with some rule-making powers and mandates to help develop and deepen European rule making and consistent supervision. It took until the end of 2010 to find the necessary political agreement after intense rounds of negotiation. France was pushing for extensive powers; Germany for far less and nothing that could disturb its Federal model of governance. The United Kingdom, which was beginning to profit mightily from the beginning of European financial integration and trading the single currency, once again played defence and sought to minimise outcomes. As before, both the European Parliament and the Council sought institutional safeguards before delegating any increased technical rule-making powers to the Commission and the ESAs. However, an agreement was reached (helped by the economic and financial crisis conditions) with the ECB also playing a crucial role to support the new structure as well as establishing the European Systemic Risk Board, something Jacques De LaRosière strongly believed in, to act as a powerful macro-prudential, risk-warning mechanism.

My view is that the developments resulting from the De LaRosière report have been a considerable success. The job is not finished, it is evident that more powers will

need to be granted to the ESAs to ensure comprehensive and inclusive European financial integration in the future within the EUs' hub and spokes regulatory and supervisory architecture.

In the post-2008 crisis period, another effort was made by the Commission to accelerate capital markets integration, now labelled capital markets union (CMU). A new CMU plan emerged in 2014-15 under the auspices of the then Commissioner, Lord Hill. I recall talking to one of his cabinet members at the time who said that there was a paucity of ideas, the complete opposite of what the High-Level Forum found in 2019-20 under the exceptional chairmanship of Thomas Wieser, where again I was fortunate to be able to play a role as chair of one of the workstreams. The High-Level Report, released in June this year, has been strongly supported and formed the basis of the Commission's very recent CMU 2.0 proposals.

The Lord Hill package not only lacked ambition, but was devoid of any high-level binding political process, or even a timetable. Inevitably the substantive results from it have been meagre.

We are now at a crucial fork in the road. Never before has European financial integration been so necessary and urgent: to assist Covid recovery; to provide the finance for a future, sustainable green economy; to build digital leadership; to establish a European safe asset; to underwrite pension sustainability; and build greater societal fairness with much improved, measured access to financial markets for swathes of citizens who have never had the knowledge nor opportunity to invest in them. To spread equity throughout the EU economy and thereby spread risk as well, reducing risk concentration in the European banking sector.

The stakes today are even greater than when we began this great integration challenge more than 20 years ago. There is substantial convergence on the measures required. What is needed is relentless, top-level political support from the European Commission, the European Council, the European Parliament and the ECB to deliver a Capital Markets Union, with a strict timetable and rigorous monitoring complementing and reinforcing banking union.

The prize is colossal – a stronger European economy that will benefit all European citizens. It was exactly the same 20 years ago.

# Chapter 2 – Plus ça change: 20 years of Giovannini barriers

Prepared by Godfried De Vidts<sup>1</sup>

## Introduction

Little did I know what would happen when one Monday morning in winter, Peter Praet, at the time Chief Economist of Generale Bank Brussels, called me at my desk at the bank to ask me to go down to the front of the building and get a taxi with him to the European Commission. He was a member of the Giovannini Group and asked me to provide input from the perspective of - what was becoming my baby – the repo market. It would be the beginning of a change in my career, and more importantly my first proper encounter with the “other side” of financial markets, the European Community (EC), European Parliament (EP) and the European Central Bank (ECB). Representing the private financial industry in a forum of highly skilled officials opened a wealth of knowledge to me, while helping them to understand how markets function. The man in charge, Alberto Giovannini impressed me a lot, even if he was a little scary at first as I had never been exposed to an economist of his calibre. The Group had already produced a first report, the second report would cover the repo markets. The final two reports published in November 2001 and April 2003, respectively, showed a good grasp of what was needed in the area of clearing and settlement in the eurozone. Not all went according to plan, as I will explain a little later.

The European Commission’s Pedro Solbes and Fritz Bolkenstein put a team together from the Directorate General Economic and Financial Affairs (DG ECFIN) and the Directorate General Internal Market and Services or DG Market (as it was then known) to contribute to the Financial Services Action Plan. The introduction of the euro on 1 January 1999 created a potential for a more integrated euro area public debt market, as Member States converted their existing and newly issued debt into euro. The creation of the ECB out of Economic and Monetary Union (EMU) opened a new market comparable to the US Treasuries market. Indeed, the euro is now the second biggest currency market in the world although the international role of the currency still needs a lot of promotion. In various discussions with ECB officials, I often remarked that the lack of a common issuance would be seen as a

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<sup>1</sup> Godfried De Vidts has over 40 years of experience in banking with both sell-side and buy-side professionals, while advising the wider regulatory and central bank community. As Chairman of the International Capital Market Association (ICMA) European Repo and Collateral Council for 20 years, his knowledge of trading and post-trade was developed in working groups such as the Contact Group on Euro Securities Infrastructures (COGESI), the Clearing and Settlement Advisory Monitoring Expert Group (CESAME), the European Post-Trade Forum (EPTF), the Macroprudential Policies and Financial Stability Contact Group (MFCG), the Secondary Markets Standing Committee (SMSC) of the European Securities and Markets Authority (ESMA); while his previous roles as a board member of ICMA and President of ACI Financial Markets have helped give him a better understanding of the various challenges facing our industry.

historical mistake. True, there was so much to be done in the early days to make sure the euro would be a stable and robust currency. Today a common issuance by all euro area Member States is still a work in progress. Hence the first report of the Giovannini Group, “Coordinated Public Debt Issuance in the euro area”, was ahead of its time, but still very valuable.

The second report, “The EU Repo Markets: Opportunities for Change”, submitted to the Commission on 26 October 1999, argued that a full and efficient integration of the euro area capital markets was needed. The Eurosystem uses repo as its main monetary policy tool, financial institutions use repo to manage their own liquidity, and – as we know now – repo transactions are increasingly used by non-bank institutions as well. TARGET and TARGET2 (T2), created by the Eurosystem for payments in euro, evolved as integrated infrastructures for payments and, increasingly, collateral. I would like to praise in particular Mrs Gertrude Tumpel-Gugerell, who committed the ECB/Eurosystem to be the catalyst for the TARGET2-Securities (T2S) initiative announced in CESAME (subject of a following report).

Throughout the last 20 years, chairing the European Repo and Collateral Council under the auspices of the International Capital Market Association, I have come to appreciate the importance and effectiveness of established market practice guidance and engaging with other associations to help this process. We have to work with the tools we have, created by industry or by the public sector. However, I cannot hide my disappointment that after 20 years we still don't have the optimal outcome, overnight settlement remains sub-optimal, the cost of clearing and settlement remains too high – the European post-trade industry still needs much more work.

That was the purpose of the final two reports regarding clearing and settlement, that I will briefly describe below. In later years, Alberto could not hide his frustration about the lack of results and would make public and private speeches about it. He planted the seeds with the two reports, although, despite further work by industry practitioners in the EPTF about two years ago, the task remains unfinished. Indeed, new barriers have been discovered/created which I hope will not take another 20 years to abolish. I am hopeful after the sovereign debt crisis of 2010-12 and the recent Covid-19 health crisis, new ways to create an ideal clearing and settlement infrastructure will emerge. Digitalisation, including the work to develop a common domain model, other Fintech innovations and faster communication are all emerging at breakneck speed. Somewhere among all that, we should find the silver bullet that creates a virtual and consolidated post-trade model that is fit for the second biggest currency in the world. Alberto's vision remains with us.

The first clearing and settlement report focused on the sources of inefficiencies. This is no surprise as we moved from many national currencies into just one. Cross-systems for securities transactions cannot be changed overnight. The original focus was to try to find an ideal level of concentration and establish a single central securities depository (CSD) – by merging both ICSDs – followed by a single central counterparty (CCP). For many reasons, not least commercial but also political, this idea was quickly dropped. Further attempts have seen the central securities depository/securities settlement systems (CSD/SSSs) integration with the “hub and spoke” model proposed by Euroclear, as well as the European Central Securities

Depositories Association's (ECSDA) "spaghetti model". Both the private and public sector focused later on further integration and/or harmonisation to make local markets work in a European way. To add a quick anecdote here, I had a conversation with a senior official (who shall remain nameless) at the time of intense industry discussions involving ECSDA members who wanted to convince me that their national system was very good, and indeed optimal for the local market. I agreed but also remarked that it was not European. Meaning that it did not work as a blueprint for many other national markets, as each Member State was proud of their own market infrastructure pre-euro. Nobody argued with that, but we absolutely needed to tackle all Giovannini barriers and time was running out.

Three types of barriers were identified:

- ten barriers related to technical requirements/market practices;
- two related to taxation;
- three related to legal certainty.

The group that produced the report, under the watchful eye of Alberto, clearly highlighted that it was essential that all these barriers be removed if a fully integrated and efficient EU clearing and settlement system was to be achieved.

The first ten barriers were seen as falling exclusively within the scope of responsibility of the private sector although in some cases public sector intervention was considered desirable. Progress has been made, but discussions continue. Corporate actions are a good example where local actors play an important role, but without public sector intervention problems remain.

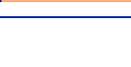
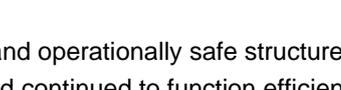
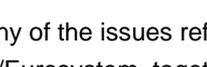
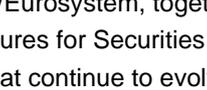
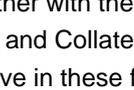
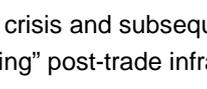
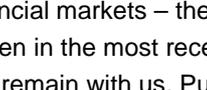
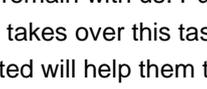
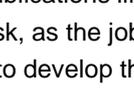
Obviously the two taxation barriers are the responsibility of governments and the topics are still being discussed, in fact, today more than ever.

I have never understood why the three legal certainty barriers are so problematic. It seemed that some progress was being made. Financial transactions are still subject to private property laws. I recall a glossy brochure published by DG Markt, under the auspices of the European Financial Market Lawyers Group (EFMLG). This report, published in June 2003, was entitled "Harmonisation of the legal framework for rights evidenced by book-entry securities in respect of certain financial instruments in the European Union" and saw this as being highly desirable (and also technically feasible) for the internal market for financial instruments.

The second and final report on EU clearing and settlement arrangement was already seen at the time as optimistic. It set out a strategy for removing these barriers, in a logical sequence of actions to remove each barrier, with a clear allocation of responsibility for each action and specific deadlines. It was clearly understood that interdependencies existed (see Table 1). Preparatory work for removing every one of the barriers was to be simultaneous, in light of the fact that the strategy implied that all of the barriers had to be removed within a three-year period. An orderly integration and consolidation process required a regulatory/supervisory structure with powers that make clearing and settlement providers deliver fair and low-cost

access, quick responses with flexibility to make changes in this operational environment.

**Table 1**  
Timeline for removing the barriers to an efficient EU Clearing and settlement environment\*

Different operating hours/settlement deadlines		Within 2 years
Diversity of IT platforms/interfaces		Within 2 years
Absence of intraday settlement finality	 	Within 2 years, 3 months
Differences in standard settlement periods		Within 2 years, 3 months
Different rules governing corporate actions		Within 2 years, 3 months
Differences in securities issuance		Within 2 years, 3 months
Conflict of laws		Within 2 years
Legal treatment of netting		Within 2 years
Absence of EU-wide framework of laws		Within 3 years
Restrictions on tax collections		Within 2 years, 3 months
Restrictions on withholding agents		Within 2 years, 3 months
Restrictions on location of clearing and settlement	 	Within 3 years
Restrictions on location of securities		Within 3 years
Impediments to remote access		Within 3 years
Primary dealer restrictions	 	Within 3 years

Note: Preparatory phase:  ; Removal phase:  .  
\* Source: [The Second Giovannini report](#).

Success would depend on a legally and operationally safe structure to make sure industry managed risk adequately and continued to function efficiently in crisis situations.

The rest is history. 20 years later many of the issues referred to above have been partially or fully addressed. The ECB/Eurosystem, together with the industry in the Advisory Group on Market Infrastructures for Securities and Collateral (AMI-SeCo), continues to look at various issues that continue to evolve in these fast-moving financial markets. The 2008 financial crisis and subsequent sovereign debt crisis has diverted attention away from the “boring” post-trade infrastructure issues. However, the importance of this part of the financial markets – the robustness of clearing and settlement – is still recognised, as seen in the most recent capital markets union (CMU) initiative. Alberto’s legacy will remain with us. Publications like this are important for the new generation that takes over this task, as the job will never be done. Reading about where it all started will help them to develop the fixed-income market and to understand the nitty-gritty of how clearing and settlement works.

# Chapter 3 – European Commission post-trading initiatives: what have we learned?

Prepared by Diana Chan<sup>1</sup>

The achievements in the safety and efficiency of securities post-trade arrangements in the European Union in the first 20 years of the 21st Century have been undoubtedly significant. It started with the recognition that disparate market practices among Member States added costs, complexity and operational risk to cross-border securities transactions. The reform of post-trade arrangements could not have taken place without the setting of common standards, the creation of a common language nomenclature and the specifications for and integration of common processes throughout the EU. The rationalisation process, which began twenty years ago, placed the EU in a position of far greater strength in the global financial markets, which has been especially evident since the financial crisis of 2007-08.

The recognition and definition of the “Giovannini barriers”, (see Chapter 2 of this part of the book) followed by the agreement to demolish them, was the first catalyst. This was without doubt the most significant enabling factor in achieving the transformation of the last 20 years.

Those involved in the Giovannini Committee rightfully deserve recognition for their valuable work.

## 1 Why and how it started

When the Commission proposed the Financial Services Action Plan (FASP) in 1999 to create a single market in financial services, clearing and settlement were not on the agenda. However, in 2000, the EU’s Economic and Financial Affairs Council (ECOFIN) appointed a Committee of “Wise Men” (chaired by Alexandre Lamfalussy) to make proposals on how to improve law-making in the EU. The Committee devoted just one of its report’s 100-plus pages to post-trade services. Despite this fact, the report was instrumental in shaping EU policy regarding clearing and settlement for years to come. The Committee made several key recommendations. The overall aim was to reduce the cost of trading securities in the EU to US levels. It also stressed that the private sector should be responsible for leading the process. It recommended policy makers to focus on the reduction of costs, to improve open and non-discriminatory access to systems and to investigate whether clearing and settlement should be subject to common European supervisory standards. The

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<sup>1</sup> Diana Chan is an Independent Non-Executive Director of Euroclear SA/NV. She was a member of the Clearing and Settlement Advisory and Monitoring Expert Group (CESAME) from its inception, in her former roles as Global Head of Market Strategy and Market Policy at Citibank Securities Services, and as Chief Executive Officer of European Central Counterparty Limited.

Committee also suggested that the EU should ensure that competition rules were properly enacted.

The following year, the European Commission launched an initiative to validate perceived obstacles to cross-border securities market transactions in the EU and to identify the public policy issues and the knock-on effects from potential models for the future structures of clearing and settlement. The Commission set up an advisory group on financial market issues, comprised of financial sector experts, chaired by Alberto Giovannini. The advisory group produced a report on “Cross-border clearing and settlement arrangements in the European Union”. The report highlighted the requirements for efficient clearing and settlement arrangements in the EU and proposed improvements to such arrangements by eliminating 15 barriers. The report became widely known as the “Giovannini Report”, and the barriers became known as the “Giovannini barriers”.

The Lamfalussy Report and the Giovannini Report had both drawn attention to the high cost of cross-border clearing and settlement in the EU, especially when compared to the US. In this context, in 2002 the European Commission issued a Communication entitled, *Clearing and settlement in the European Union: Main policy issues and future challenges*. It focused specifically on the need for a level playing field and encouraged open access to all clearing and settlement systems. It had two main objectives, the first of which was the removal of the 15 Giovannini barriers and competitive distortions or unequal treatment of entities performing similar clearing and settlement activities. The Giovannini barriers highlighted differences in national markets which act as obstacles to the efficient functioning of the capital market in the EU. The second objective was the parallel application of competition policy.

The Commission’s Communication was followed by an extensive consultation period which revealed that there was no common vision among market practitioners as to the post-trading landscape. It was observed that the single securities post-trade infrastructure in the United States, The Depository Trust & Clearing Corporation (DTCC), delivers low cost and dynamic efficiency through economies of scale, ownership by users in proportion to their usage and operates under a constrained profit model. However, there was no practical path that would lead to consolidation of the numerous national post-trade infrastructures in the EU. The vast majority of the EU’s securities post-trade infrastructures are for-profit business ventures. Many are publicly-listed companies, which have vertically integrated and operate trading and post-trade services in both securities and derivatives markets in their national jurisdictions. There was no commercial incentive for these entities to change their business model. Furthermore, the drive for continuous growth and increased profits motivated certain post-trade infrastructures to provide additional services in competition with banks. It seemed that encouraging consolidation of post-trade infrastructures as a means to eliminate cross-border frictions would be difficult. An alternative route to reducing cost and improving efficiency that could be realistically achievable would be via standardisation of market practices across the Member States.

In the following year, 2003, a second Giovannini Report was published (see aforementioned Chapter 2). It assessed the prospects for the EU clearing and settlement

architecture, with a particular emphasis on public policy aspects. This report attempted to provide solutions to the problems identified in the first report and proposed a sequence of immediate actions and a timetable (within four years) for the elimination of the Giovannini barriers. In 2004, the Commission issued its Communication on Clearing and Settlement in the European Union: The way forward, which proposed a possible framework directive and three expert groups to give advice on tackling the Giovanni barriers.

## 2 CESAME

The Clearing and Settlement Advisory and Monitoring Expert Group (CESAME) was one of the expert groups proposed in the Communication. It was established by the Commission in late July 2004, to be the centre of a coordinated effort to tackle six technical and market practice barriers within the domain of the private sector. CESAME also had the mandate to monitor the progress of the other two expert groups formed to dismantle the other barriers in the public sector: the Fiscal Compliance Expert Group (FISCO) and the Legal Certainty Group.

Mario Nava, Head of the Financial Market Infrastructure (MARKT) Unit, led the creation of the expert groups; Dr Giovannini acted as Principal Policy Adviser of CESAME; and observers from the public sector included the European Central Bank (ECB). CESAME engaged a wide range of private sector institutions including custodians, banks, brokers, central securities depositories, international central securities depositories, exchanges, central counterparties and issuers. Representatives from these institutions were drawn from the highest ranks of management of the post-trade businesses, because only they would have the power, know-how and resources to deliver the workplan outlined in the Second Giovannini Report. During the next four years, the group met frequently to discuss action plans, assign tasks and agree time scales in the removal of the Giovannini barriers. Engagement from the top was evident.

In parallel, during the same year as CESAME was established, another important initiative on post-trade services came to fruition. A report entitled, Standards for securities clearing and settlement in the European Union, was published, which was a collaborative work of the European System of Central Banks (ESCB) and the Committee of European Securities Regulators (CESR).

These standards aimed to increase the safety, soundness and efficiency of securities clearing and settlement systems in the European Union, by taking a functional approach: if services are provided with the same risk considerations, then irrespective of an institution's role in the marketplace or systemic importance, the institution must comply with the standards.

This approach led to a competitive debate between settlement infrastructures and banks. Those settlement infrastructures that provided banking services, advocated levelling the playing field with banks by subjecting those banks active in securities services to these standards, even though the standards had been primarily designed

for settlement infrastructures. The banks, however, considered their roles and services in the commercial and competitive sector fundamentally different. This debate between settlement infrastructures and banks led CESAME to form a Definitions Sub-Group with a view to assisting the Commission in the development of a language of functional definitions for use in discussions. Stakeholders in the debate rapidly accepted the importance of clear definitions of functions. Standardisation of industry terminology would help all involved, including determining whether and how they would be subjected to future regulations that were being contemplated.

The functional approach to regulation in the post-trade domain was ultimately addressed in the Central Securities Depository Regulation (CSDR) which, when implemented in 2015, imposed stringent safety requirements on banking services provided by settlement infrastructures, in view of their systemic importance.

By the end of 2008, CESAME had published its final report covering the group's work. Issues still to be tackled by the various entities involved were highlighted. Completing the necessary tasks had taken longer than originally expected; nevertheless, noticeable progress had been made in dismantling the Giovannini barriers.

The challenge of implementing harmonised processes can best be illustrated by barrier three on corporate actions. It took a significant amount of time and effort for the securities processing industry to reach agreement on standards, but implementation was even more challenging. A large number of stakeholders each had to devote significant resources to undertake the changes, since standardisation means everyone has to change some aspect of their market practice. The central focus required to implement common targets was missing, thus delaying improvements in the cross-border settlement, holding and servicing of securities. The full elimination of several Giovannini barriers was ultimately achieved in 2015, via the implementation of TARGET2-Securities, a service for securities settlement in the euro area, fully owned and operated by the Eurosystem, which imposed a project timetable on the industry and focused everyone's efforts.

As for barriers in the public sector, the CESAME experience showed that these could not be easily dismantled either. When the final CESAME report was issued in 2008, several years after the establishment of the FISCO and Legal Certainty Groups, the public sector had yet to start setting and implementing standards.

The work of CESAME was a learning process which influenced subsequent initiatives. The CESAME proceedings and conclusions were promptly published online, a process that was pioneering at that time. The transparency allowed open discussion and engagement by stakeholders beyond the members of the CESAME group.

Subsequent initiatives in the domain of post-trade services similarly engaged senior executives from a wide range of industry and public sector stakeholders. These included the TARGET2-Securities Advisory Group: its discussion summaries and resolutions were published on the internet the same day.

Through CESAME's work and with the accepted use of a common terminology, post-trade processes became more widely understood throughout the finance sectors of the whole of the EU.

Besides highlighting the need for strong public sector leadership in harmonisation of market practices and paving the way for TARGET2-Securities, CESAME contributed to many other post-trading projects such as the Code of Conduct (see Chapter 4 of this part of the book), systemic risk management standards for CCPs and other public sector initiatives.

CESAME embodied a trust between policy makers and industry that was essential to reach the optimal result.

# Chapter 4 – The Code of Conduct for clearing and settlement

Prepared by Judith Hardt<sup>1</sup>

## 1 EU milestones towards self-regulation

In 2000, the Economic and Financial Affairs Council (ECOFIN) of the EU appointed the Group of “Wise Men” chaired by Alexandre Lamfalussy to make proposals on how to improve law-making in the EU. The Committee devoted just one of its 109 pages to post-trade services. Despite this fact, the report was instrumental in shaping EU policy regarding clearing and settlement for years to come. The Committee made several key recommendations. The overall aim was to reduce the cost of trading securities to US levels. Many exchange groups were structured as vertical silos, which did not allow for open and non-discriminatory access to clearing and settlement systems. Consequently, the Committee’s recommendation was to ensure that competition rules were applied to financial infrastructures.

In May 2002, the European Commission issued a Communication entitled, Clearing and settlement in the European Union: Main policy issues and future challenges. The Commission’s Communication kicked off an extensive consultation period which revealed that there was no common vision of the post-trading landscape among market practitioners. Some argued that financial sectors should be regulated and supervised, whereas others were of the view that the private sector should be leading the progress.

The first Markets in Financial Instruments Directive (MiFID I), was another important milestone leading towards self-regulation. The Directive was adopted in April 2004 after a bruising and lengthy process. The Directive had a huge impact on the securities exchanges’ monopoly on equity trading but left the post-trade services largely unscathed.<sup>2</sup> The Directive obliged Member States to make sure investment firms from other Member States had access to central counterparty (CCP) and central securities depository (CSD) services in their territory under the same conditions as local firms but the provision was not implemented and amounted to some extent to wishful thinking by policy makers. But the provisions in MiFID were vague and largely left post-trading infrastructures unscathed from competition. The

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<sup>2</sup> MiFID had not achieved the integration it sought to achieve. It focused primarily on the trading of securities and post-trade services were not included. Article 34 and 46 of MiFID provided some access rights to regulated markets and investment firms in the post-trade area. MiFID obliged Member States to make sure investment firms from other member states had access to clearing, CCP and CSD services in their territory on the same conditions as local firms. It established the right of market participants to choose the settlement locations (but not the CCP clearing location) for their trades so long as links were in place between regulated markets and the organisations in question. Regulated markets were also given the right to choose a particular CCP and/or CSD to clear and settle their transactions. MiFID did not, however, cover the relations among post-trade infrastructures.

time seemed right for the EU Commission to put forward a framework directive, as announced in its Communication of April 2004. That is however not what happened!

## 2 The Code of Conduct for clearing and settlement

In the second half of 2004, Charlie McCreevy became EU Commissioner for the single market. His reputation as a free marketer preceded his arrival in Brussels. He had been successfully running Ireland's economy which was one of the best performing economies in the EU at the time. His predecessor, Frits Bolkenstein, had overseen the adoption of nearly all of the 42 proposals which had figured in the Financial Services Action Plan (FSAP). There was widespread regulatory fatigue, especially following the difficult adoption of MiFID. Commissioner McCreevy's view perfectly matched the mood. His mantra was, "less is more". Before taking office, he gave a speech, in June 2004, announcing that he would consider regulation "only as a last resort". He stated that regulation should only be considered if non-legislative measures had failed.

In March 2006, Commissioner McCreevy called a meeting of the CEOs of stock exchanges represented by the Federation of European Securities Exchanges (FESE). This was a highly unusual move. The CEOs met in a nearby hotel to prepare for the meeting, determined to block additional EU regulations. Following the adoption of MiFID, they feared losing the trading of domestic blue-chip stocks to foreign competitors. They were not keen to open their post-trading business to additional competitors. However, when they met McCreevy, they quickly realised that they had little choice. He told them to accept their responsibility and to "put their foot on the gas". He informed them unequivocally, that they would face a directive unless they proposed a Code of Conduct. The aim of the Code was to address the key problems facing the sector, including high costs and lack of competition across borders. FESE's CEOs came back from the meeting deflated. Given McCreevy's clear ultimatum they had no choice but to play along. They reached out to CCPs and CSDs. They knew them well since they often worked together in the same exchange groups.

In parallel, Commissioner McCreevy started working with the EU Competition Commissioner, Neelie Kroes. This was a novelty for the Directorate General Internal Market and Services (DG MARKT). The idea was to improve the Commission's understanding of the complicated post-trading landscape in Europe. In 2003, the Directorate General Competition (DG COMP) had sent a questionnaire to national authorities requesting information about "exclusive arrangements relating to trading, clearing, settlement and depository of securities". The results of this consultation were summarised in a report written by the consultancy, London Economics<sup>3</sup>, which looked critically at the monopoly of CCPs and CSDs. The conclusions were damning: many users in Europe had no choice when it came to their post-trading providers.

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<sup>3</sup> European Commission (2005), *Securities trading, clearing central counterparties and settlement in EU 25 – an overview of current arrangements*, 30 June.

The pressure was mounting on exchanges to open up their vertical silos. However, thanks to the successful lobbying by capital market company, Deutsche Börse, Germany was not on board. Shortly after the publication of the DG COMP report in 2005, Jörg Asmussen, the Director General of the German Federal Ministry of Finance, attended the Annual Convention organised by FESE in Zürich and announced that Germany would not support a directive, saying: “We cannot have integration at any price. Well-functioning and efficient national structures which have evolved over many years may not be just simply left by the wayside. Against this background, Germany would not be able to accept a clearing and settlement directive”. This meant, that the initial threat of having to face a new directive appeared to be less likely.

In July, Commissioner McCreevy told the Economic and Monetary Affairs Committee of the European Parliament that he had asked the industry to produce a “Code of Conduct” to lower costs and to enhance competition. He told Parliament that he expected the industry to adopt the code by 31 October 2006.<sup>4</sup> Commissioner McCreevy’s instincts were to trust the industry to come up with more palatable solutions than the Brussels law-making machinery. Industry associations representing exchanges, CCPs and CSDs, FESE, the European Association of Central Counterparty Clearing Houses (EACH) and the European Central Securities Depositories Association (ECSDA), respectively, launched their work on the Code of Conduct, which comprised three key elements: price transparency in post-trade services (to be delivered by the end of 2006);

- access rights on a fair, transparent and non-discriminatory basis, between exchanges and CCPs, between CCPs, between CCPs and CSDs and between CSDs;
- unbundling of prices and services, and separate accounting.

The three associations presented the Code in record time. The Commission organised a signing ceremony with senior executives on 7 November 2006 in Brussels. The Code’s aim was “to offer market participants the freedom to choose their preferred provider of services separately at each layer of the transaction chain (trading, clearing and settlement) and to make the concept of cross-border’ redundant for transactions between EU member states”.<sup>5</sup>

The Code initially only covered equities, but Commissioner McCreevy announced that this was “a first step” and that he wanted the industry to include bonds and derivatives.

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<sup>4</sup> European Commission (2006), *Clearing and Settlement in the European Union: The way forward*, speech by Charlie McCreevy to the Economic and Monetary Affairs Committee of the European Parliament, 11 July 2006.

<sup>5</sup> EACH, ECSDA, FESE (2006), *European Code of Conduct for clearing and settlement*, 7 November.

### 3 The interoperability guidelines

DG COMP's report had additionally suggested that interoperability could be an important tool to further integrate the diverse national post-trade infrastructures, providing users with more choice. Most exchange operators, especially those which owned commercially successful derivatives clearing houses, were very much opposed to the introduction of interoperability. It was feared that interoperability would allow small competitors to steal the liquidity from derivatives exchanges' most important contracts. The idea of interoperability was, however, strongly supported by Massimo Capuano, the CEO of the Italian Stock Exchange (*Borsa Italiana*) and President of FESE at the time.<sup>6</sup> Under his leadership, FESE discussed at length how to respond to the pressure for more competition. FESE, EACH and ECSDA started working on a Code of Conduct and proposed that the industry would agree an interoperability agreement later to increase competition and reduce costs.

David Wright, Director General of DG MARKT and Mario Nava, Head of the Financial Services Unit, were disappointed that the proposed Code did not include a detailed proposal for interoperability between post-trade providers. They had pushed hard to get a stronger commitment from the industry. FESE's Secretary General at the time, Judith Hardt, told them that this had not been possible in such a short time. The industry did commit itself, however, to deliver the so-called "Access and Interoperability Guidelines" the following year.

### 4 Enforcing the Code of Conduct

The Code was a non-legislative instrument and could not be legally enforced. Mario Nava and his team sought to address this weakness by launching the Monitoring Group of the Code of Conduct for clearing and settlement (MOG), which consisted of representatives from DG MARKT, DG ECFIN and the DG COMP, the European Central Bank (ECB), the Committee of European Securities Regulators (CESR) as well as market participants. The MOG met regularly over two years and the three associations were tasked with providing feedback on the progress in implementing the Code of Conduct. The Commission also relied on "naming and shaming" those organisations which did not comply with it.

The Commission also made sure that other EU institutions, which were unfamiliar and possibly also sceptical towards self-regulation were kept informed about the progress. For instance, in February 2007, the Commission sent a staff working document to the Council of the European Union. The document concluded that the

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<sup>6</sup> Speech by Massimo Capuano, FESE Convention, Zurich.

Code of Conduct had made a promising start and the Commission also promised to report back to the Council and the European Parliament.<sup>7</sup>

## 5 The 2008 crisis spells the end of the EU Code of Conduct

Work had advanced rapidly regarding the interoperability guidelines. In June 2007, the three industry associations presented the “Access and Interoperability Guidelines”.

The guidelines were hammered together following an impressive number of meetings between the experts of the three associations. The guidelines the three associations had produced consisted of 128 paragraphs which were extremely dense and practically incomprehensible to anybody outside the post-trading world. Interoperability was defined as “Advanced forms of relationships between organisations that agreed to establish mutual solutions going beyond standardised or customised services”.

Only six months later, in January 2008, EACH, ECSDA and FESE had received over 80 interoperability requests, though many market participants were disappointed with the effectiveness of the guidelines. Interoperability could only work if it was mutually beneficial. Interoperability depended on the business cases of the CCPs involved. Large incumbent CCPs, which faced interoperability requests from smaller competitors, were effectively forced to share their business with rivals. Trust was also a necessary ingredient; but trust was in short supply. Some market participants reported lengthy delays in responding to their access requests. Supervisors had not signed up to the Code of Conduct and were not obliged to enforce its rules. The complexity of the guidelines triggered bureaucratic delays.

During a EUROFI conference on 12 September 2008, Chris Tucker, the Chairman of LCH.Clearnet, called onto the Commission to apply “some authority, some power, or at least moral suasion to get some of these blockages addressed”.<sup>8</sup> His calls came three days before Lehman Brothers declared bankruptcy, unleashing an unprecedented crisis which put CCPs firmly onto the map. Both regulators and senior officials from the post-trading sector would be busy during the next few years addressing the fallout of the biggest financial crisis since 1929.

The MOG was wound up in 2010, as the 2008 financial crisis turned attention away from securities towards the pressing need to regulate over-the-counter (OTC) derivatives, central counterparties, and trade repositories. Regulators were now

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<sup>7</sup> Council of the European Union (2007), 6516/07, EF 20 ECOFIN 75, Brussels, 20 February. In assessing compliance, MOG will examine a wide range of information, the sources of which include the input provided by users of clearing and settlement services; the input from infrastructure providers; and input from national regulators – to whom data on accounting separation will be communicated once the final part of the Code enters into force. Finally, it is foreseen that signatories of the Code will task their external auditors to verify their compliance with it. To monitor compliance, MOG will organise meetings and regular hearings with concerned parties.

<sup>8</sup> EUROFI Conference (2008), *EU priorities and proposals from the financial services industry for the ECOFIN Council*, Nice, 12 September.

firmly convinced that the time had come to regulate the post-trading sector on both sides of the Atlantic.

## 6 Lessons drawn

In retrospect, identifying barriers to achieving an integrated securities market in the European Union proved to be an easier task than removing the barriers. Harmonisation of domestic market practices as a means to removing the barriers meant that there was no need to create specific cross-border systems and procedures.

An important lesson concerned the scope of the work. While the most salient problem for many market practitioners was the lack of interoperability provision – which would have forced (derivatives) exchanges to open their vertical silos, leading to real competition – it was becoming clearer and clearer that interoperability could not be achieved without harmonisation of domestic procedures and without the removal of “public” (legal and tax) barriers.

When the Code of Conduct was launched, many stakeholders preferred regulation to be used as a last resort only. Exchanges also committed voluntarily after the bruising defeat during the adoption of MiFID I which had deprived them of their monopoly in trading equities. The Code of Conduct allowed them to shape the rules which would improve the transparency of prices, the unbundling of services and accounting separation. However, because of the Code’s voluntary nature, the result was a compromise. Implementation of agreements could involve costs for parties that did not clearly benefit from the changes, thereby delaying adoption. Link requests introduced under the Code of Conduct between financial infrastructures typically encountered delays – especially when there was no commercial incentive for an incumbent – with barriers of a regulatory or supervisory nature being cited as the reason, however. In other words, there are limits to self-regulation in the presence of market failure – whereby private sector entities operating in pursuit of their individual business interests do not collectively create the smooth functioning system necessary for an integrated securities market in the European Union. Public sector leadership then becomes necessary.

Finally, the Clearing and Settlement Advisory and Monitoring Expert Group (CESAME) and the Code of Conduct experience, proved that a high degree of transparency in policy discussions and extensive involvement of the main stakeholders is a worthwhile investment in time and effort. It ultimately helped to build the consensus that was necessary to adopt new solutions, such as TARGET2-Securities, which were not envisaged at the start of the process.

# Chapter 5 – The contribution of T2S to integration in the European Union

Prepared by George Kalogeropoulos<sup>1</sup>

Integrated financial market infrastructures (FMIs) should enable issuers and investors, and all intermediary actors in the value chain (e.g. banks, central securities depositories (CSDs)), to execute a financial transaction without being affected by the location of the final counterparties. In other words, in such a situation, within a complete European capital markets union, the risks and costs usually associated with a financial transaction should be location neutral.

How does TARGET2-Securities (T2S) contribute to achieving such an objective? The link is indeed very strong. In fact, T2S is not only linked to the concept of a capital markets union but is one of its many crucial prerequisites. At the EU level, the daily value of securities transactions processed in CSDs is worth approximately 6 trillion euros.<sup>2</sup> In the past, the settlement processes for these transactions were fragmented along national borders – each country had its own set of procedures and requirements – and this made cross-border settlement (and to some extent cross-border investments) difficult and cumbersome. It is hard to imagine how a capital markets union could function without a single market infrastructure for securities settlement. The T2S platform and its “regulatory partner”, the Central Securities Depositories Regulation (CSDR)<sup>3</sup>, are the cornerstones of the single market for securities settlement and have spurred significant progress towards that goal.

Here, I would like to elaborate on the other two key contributions that T2S has made to the financial integration of securities settlement infrastructure, notably the harmonisation process and the creation of a euro liquidity pool in central bank money (CeBM).

## 1 Harmonisation

An important dimension of the integration process, triggered and greatly fostered by T2S, is its harmonisation agenda. The work of T2S harmonisation has not only supported financial integration by aligning technical, operational and even legal rules across the 20 national markets connected to T2S, it has also served as a key element of the T2S project itself. Market actors did not join and invest in T2S just to get a single settlement platform; many of them did so because of the added value it brought them and their clients via the (long-overdue) harmonisation of post-trade procedures. In other words, having a concrete project on the table incentivised

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<sup>1</sup> George Kalogeropoulos is Deputy Head of the ECB's Market Infrastructure Development Division.

<sup>2</sup> 2019, ECB Securities Settlement Statistics

<sup>3</sup> See Chapter 4 of Part 6.

harmonisation and, in turn, harmonisation contributed to the success of the project. This is the virtuous circle triggered by T2S.

What differentiated the T2S harmonisation agenda from other similar post-trade initiatives, was that T2S has been instrumental in moving discussions from a purely theoretical dimension towards a tangible action plan.<sup>4</sup>

Before T2S, we were faced with a wide variety of different practices across European markets and ultimately worked through them by collaborating with stakeholders who recognised the added value of harmonisation for their business models. We integrated ancillary processes and legal frameworks to dismantle some of the Giovannini barriers that hindered efficient cross-border activities. Significant progress was achieved at European level on long-standing barriers like IT communication protocols, settlement timeline and deadlines, business calendars, naming conventions, as well as coordinated implementation of settlement finality rules across the T2S CSDs and national markets. There is still work to be done on some of them, including corporate actions, however considerable progress has also been made in this field.

All in all, the launch of T2S and its harmonisation agenda, directly dismantled, or helped to dismantle, at least ten of the original 15 Giovannini barriers identified in 2003<sup>5</sup>.

Once more, the T2S governance structure was instrumental in this success, as exemplified in the creation of the Advisory Group on Market Infrastructures for Securities and Collateral (AMI-SeCo)<sup>6</sup>, which brought together representatives of banks active in the European Union in their role as T2S users, central securities depositories (CSDs), central counterparties (CCPs) and national central banks. For the first time at European level, public and private entities established a thorough methodology via which they defined, endorsed, monitored and assessed standards (and compliance with them) in 20 national markets. The catalyst element of this process, including the transparency of publishing compliance results on the European Central Bank (ECB) website, was unprecedented.

## 2 Collateral and liquidity management pool

Another crucial contribution of T2S to financial integration, is the great potential for collateral and liquidity savings that it can generate for participants. Even though migrating to the new platform required restructuring, all participants decided to invest in the project because of both the significant collateral and liquidity savings T2S offered, as well as the recognition that T2S would pave the way for new business opportunities in the future post-trading landscape.

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<sup>4</sup> See: European Central Bank (2020), [Tenth T2S Harmonisation Progress Report](#), January.

<sup>5</sup> See Section 1 of European Central Bank (2018), [Ninth T2S Harmonisation Progress Report](#), October.

<sup>6</sup> See [here](#).

T2S has provided banks and intermediaries with a single pool of collateral for the entirety of their European business, thereby optimising settlement and triparty procedures. Additionally, T2S's auto-collateralisation mechanism has reduced the need to pre-fund cash accounts, both for daytime settlement and, in particular, for night-time settlement. It is important to point out that the use of auto-collateralisation does not incur fees for market participants because the Eurosystem views the feature as an essential component of T2S.

With T2S, a participant can now centralise all T2S cash flows in one dedicated cash account (DCA), in order to benefit from the netting effect across CSDs and T2S markets. This represents a significant change from a fragmented world, where a participant, being a member of several CSDs, had to use many cash accounts in different central banks to manage multiple liquidity pockets and collateral pools.

For instance, one major European intermediary previously had to maintain a number of euro cash accounts with the central banks of the main euro markets to fund its clients' settlement activity. With T2S, the vast majority of cash settlement activity (more than 90% in some cases) can now use a single DCA. The resulting netting effect, along with the T2S auto-collateralisation facility, can significantly reduce the amount of additional cash or collateral required in the T2S settlement process. Therefore, a uniformed capacity to leverage national central bank (NCB) auto-collateralisation and client auto-collateralisation is one of the greatest achievements of T2S, as far as liquidity management is concerned.

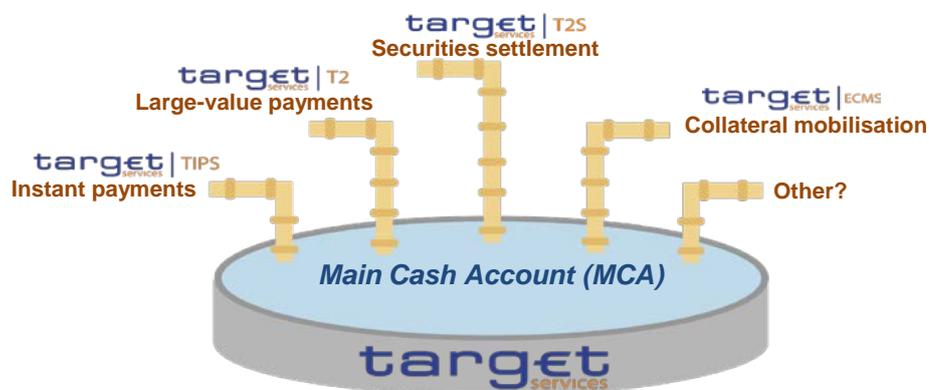
Another T2S feature seen as beneficial is the common rules on night-time settlement. This unified process consumes less liquidity than under previous market arrangements, where such night batches were not available through all CSDs.

### 3 T2S as part of future TARGET Services

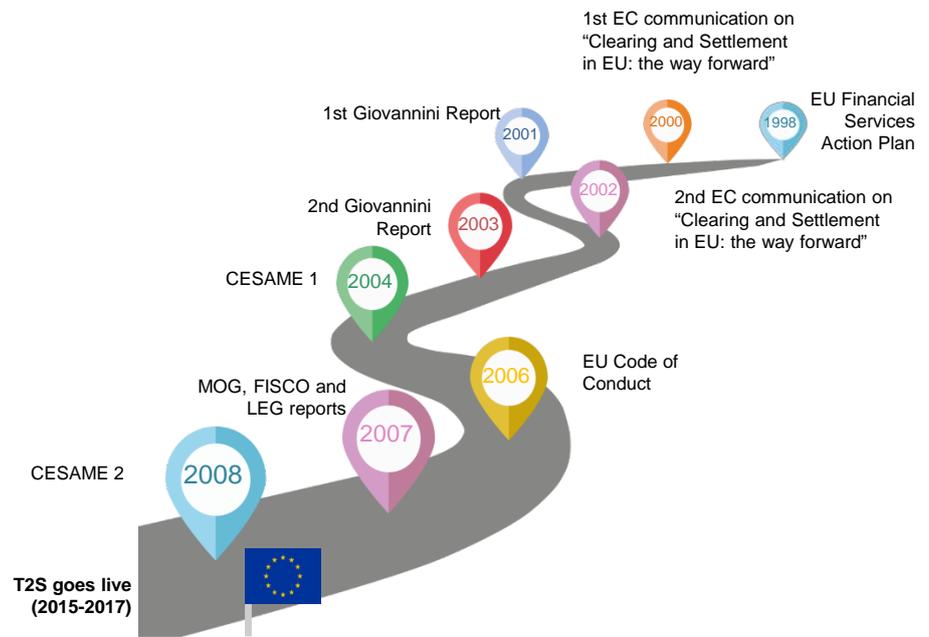
Although T2S has already achieved a lot, its potential to bring further added value to the European economy, and ultimately to EU citizens, is only in its infancy. In order to further enhance the efficiency and safety of the European financial market infrastructure, the Eurosystem decided in December 2017 to launch a project to consolidate TARGET2 and T2S, in terms of both technical and functional aspects, with the consolidated platform scheduled to go-live in November 2022,. The consolidation project will introduce a central liquidity management system that will allow participants to monitor and manage their liquidity using a main cash account (MCA) for all TARGET Services. In addition, any liquidity held in DCAs in TARGET Services will be considered for minimum reserve purposes with regard to the Eurosystem, without the need to transfer the balances back to the main cash account.

Also, taking into account that the Eurosystem Collateral Management System (ECMS) will be launched by November 2023 as depicted in Figure 1 below, the MCA will be able to provide market actors with a single liquidity pool in euro and central bank money (CeBM), which will facilitate transactions in payments (wholesale and retail), securities and collateral mobilisation.

**Figure 1**  
Single liquidity pool in euro in central bank money



# The long and winding road towards the integration of post-trade systems





## Part 4

### The Eurosystem as overseer

# Chapter 1 – Oversight of financial market infrastructures: a core central bank function

Prepared by Daniela Russo and Lawrence Sweet<sup>1</sup>

## 1 Introduction

Financial market infrastructures (FMIs) are vital, yet often unseen, components of the economic life of contemporary societies. For instance, the financial system and the “real” economy depend critically upon FMIs such as payment, clearing and settlement systems in meeting payrolls, buying and selling goods, funding education, making capital investments and carrying out all other vital transactions. The smooth functioning of such FMIs is essential to the overall safety and efficiency of market economies. To promote the smooth functioning of FMIs, domestic and international oversight authorities, arrangements, and activities have been established to take account of their growing systemic importance and interconnectedness, including across borders.

Since the early 1990s, the safety and efficiency of FMIs has become a major focus of analysis and cooperation among central banks, market authorities and international financial organisations such as the World Bank, the International Monetary Fund (IMF), and the Bank for International Settlements (BIS). In parallel, considerable knowledge and experience have accumulated on how oversight activities can be designed and implemented, and on how oversight challenges can be addressed. This increased focus has been underpinned by two developments: first, the growing recognition among central banks of the importance of the underlying payment and settlement infrastructure to financial system stability; and second, the increasing interconnectedness – and hence interdependency – of the global financial system on the safety and efficiency of each domestic financial system.

While the Eurosystem, like other central banks, has elaborated its own doctrine on FMI oversight, the key concepts of oversight have been developed within and have been informed by the evolving international context of joint thinking and analysis. Much of this seminal work has been carried out by the Committee on Payment and Settlement Systems (CPSS), now the Committee on Payments and Market Infrastructures (CPMI), both on its own and in co-operation with the International Organization of Securities Commissions (IOSCO). In particular, most of the

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Eurosystem central banks have been working cooperatively together and with other central banks and authorities, through these committees to define and develop the entire field of FMI policy and oversight. The CPSS was chaired by Tommaso Padoa-Schioppa from 2000 to 2005, and it was under his leadership that the CPSS defined oversight as “a central bank function whereby the objectives of safety and efficiency are promoted by monitoring existing and planned systems, assessing them against these objectives and, where necessary, inducing change”.

The purpose of this note is to elaborate on the role and the importance of FMI oversight as a core central bank function. In particular, we first look at the origins of central bank interest in, and oversight of, FMIs; we then discuss how the role and function of central bank oversight has evolved over time; and we then observe the important relationships and synergies of central bank oversight with monetary policy and banking supervision. Finally, we provide a few conclusions.

## 2 The origins of central bank oversight

Historically, payment systems have been at the heart of banking. As more and more countries in the 19th and early 20th century started to centralise and control money-issuing activities within a single banking institution (i.e. a “central bank”), the deposit liabilities issued by the central bank were used as a means to settle commercial banks’ payment obligations to one another. As central banks took on their role at the centre of domestic financial systems, the direct provision of clearing and settlement services for interbank payments has historically been one of the central banks’ *raison d’être* (Padoa-Schioppa, 1999). Yet, even into the 1970s, the broader systemic importance of payment systems and other FMIs was less appreciated than other, more “visible”, components of the financial system. During that time, FMIs were mainly looked at from a narrow, operational perspective (e.g. can they be faster, cheaper, better?). Not until the 1980s – in conjunction with the accelerating complexity of the domestic and global financial system itself – did their other aspects (e.g. credit and liquidity risk management, governance, legal basis, operational resilience, etc.) and their broader impact on the safety, efficiency, and stability of the financial system become increasingly apparent.

One of the key developments during the 1980s and 1990s that prompted central banks to start collectively elaborating and discussing FMI oversight concepts and cooperation was the growth of “offshore netting” and “international payments” in their domestic currencies. Other related developments included the rapid expansion of the global foreign exchange market and the international bond market. The potential impact of these developments on the stability of the broader financial system – and, indeed, the realisation of a number of notable market stresses and failures during this period – led central banks to investigate the sources of the associated risks and potential risk controls and mitigation tools. This resulted in a number of important insights and advances, such as the potential role and use of payment-versus-payment (PvP) and delivery-versus-payment (DvP) arrangements to reduce risks when settling foreign exchange and securities transactions, respectively; the importance of legally binding intraday finality to support effective intra-day risk

measurement and management; and the benefit of developing, and applying, international standards for addressing liquidity risk, credit risk and operational risk in a consistent manner within and across jurisdictions. In parallel, central banks developed their internal oversight functions as well as cooperative oversight arrangements with other central banks and other authorities, both domestically and cross-border, to oversee FMIs within their respective purviews. All of these efforts were designed to help central banks and other authorities improve the overall safety and efficiency of their own and private sector payment systems, and of other financial market infrastructures, including by strengthening their financial and operational integrity; their robustness and resilience to shocks; the adequacy of their legal foundations; and the focus of their governance structures in support of the markets they serve and the broader public interest.

Notwithstanding these important advancements and activities, FMI oversight activity was not always formally recognised as an explicit central bank function with dedicated powers to monitor, to assess, and to enforce action that may be needed to achieve their oversight objectives directly. Instead, central banks typically relied upon “moral suasion” as their main tool, which was often supported by the issuance of policy statements to make their oversight concerns, requirements and expectations publicly known. Despite the lack of formal oversight powers, central bank moral suasion often proved then – and now – to be quite effective in and of itself, and even more so when reinforced by the tools and other sources of influence they have in their other roles. One such role many central banks have is as **owner and operator of FMIs**, most notably payment and securities settlement systems, through which they can lead by example in observing international standards for the management and operation of their own systems. Other relevant central bank roles may include as **users of FMIs**; as market participants (e.g. in implementing monetary policy and when acting as fiscal agent for their governments); as **providers of accounts and liquidity facilities** to eligible entities; and as **supervisors** of FMI operators and/or their participants.

### 3 Evolution of central bank oversight

The initial focus of central bank oversight had been typically on the safety and efficiency of privately-operated domestic payment systems. The focus then expanded, often in conjunction with other domestic market authorities, to privately operated securities settlement systems (SSSs) and central securities depositories (CSDs) for domestic securities and then to central counterparties (CCPs) for domestic equities. Later their scope extended – often in cooperation with other relevant foreign central banks and market authorities – to FMIs for the clearing and settling of cross-border payments and securities transactions; then, in line with their growing systemic importance, to domestic and international CCPs for derivatives transactions; and, more recently, to trade repositories (TRs). Indeed, after the Lehmann financial crisis of 2008-09, the systemic role of CCPs and TRs has increased as many jurisdictions adopted requirements to clear certain derivatives transactions through CCPs and to report certain transactions to TRs.

Several factors explain the growth of central bank interest in the smooth functioning of other FMIs than payment systems. First, many central banks directly operate SSSs, typically for government securities. Second, central banks may be users of other FMIs (in particular SSSs and CSDs) when conducting monetary policy operations or when extending credit or liquidity to eligible entities. Third, there are strong interdependencies between payment and securities transactions (for instance, money market operations, repurchase agreements, and outright securities sales that require DvP settlement) as well as between payments and derivatives transactions (e.g. to settle margin obligations). Finally, the soundness of these FMIs may affect the stability of the currency or currencies of denomination of the transactions they clear and settle. As a consequence, the central banks of issue of those currencies have a strong interest in the safety and efficiency of those FMIs.

Although TRs do not directly take on financial risks, central banks are concerned about their smooth functioning. TRs that do not function properly have the potential to introduce market-wide instability because they can transmit operational problems to other FMIs (payment systems, SSSs and CCPs) to which they are connected, or they may trigger credit and liquidity problems for other FMIs to the extent that they transmit inaccurate or late information about transactions to clear and settle. Furthermore, central banks often rely on the information provided by TRs to support their oversight and policy activities.

The responsibility and authority of central banks for overseeing the safety and efficiency of payment systems has now become uncontroversial, typically exclusive and, more recently, increasingly underpinned explicitly by law or regulation. For instance, many central banks now have explicit authority to sanction FMIs that do not observe their oversight requirements, and most central banks have a dedicated FMI oversight function to carry out these responsibilities. At the same time, direct responsibility for overseeing SSSs, CSDs, CCPs and TRs often lies in, or is shared with, other authorities – most notably securities regulators or other market authorities. Accordingly, central banks often seek to cooperate with such authorities in developing and overseeing the implementation of consistent objectives and standards for those FMIs, including central banks and other authorities in emerging market economies.

## 4 Oversight and monetary policy

The central bank's FMI oversight responsibilities can complement its responsibilities for monetary policy. First, the design and performance of domestic payment and securities settlement systems are crucial for the smooth execution of monetary policy operations and for underpinning the safety, efficiency and effectiveness of money flows across the economy. In particular, central banks often implement monetary policy by engaging in market transactions that must be settled with their counterparties through domestic FMIs. Depending on the particular central bank and its particular monetary policy targets, these transactions may involve the purchase or sale of government bonds, collateralised borrowing or lending, foreign exchange transactions or trades in other financial instruments.

The design and functioning of FMIs can also have a direct impact on market-wide liquidity. For instance, a poorly designed FMI might require unnecessary, avoidable, or untimely drains on market-wide liquidity, either routinely or in times of market stress. Similarly, an FMI might generate hard-to-manage liquidity risks for its participants if it relies on procedures such as unwinding and revising net settlement positions following a participant failure. More generally, while a sound FMI can be a source of strength and stability in times of crisis, if an FMI does not adequately address credit, liquidity, operational and other risks, it can amplify market-wide liquidity disruptions and, ultimately, systemic risk. This can occur, for instance, if the FMI, its participants, or its liquidity providers might be forced to address unanticipated liquidity needs by borrowing or selling assets at “fire sale” prices that, in turn, can have a market-wide impact on asset prices, interest rates and exchange rates.

Since the FMIs can directly affect the liquidity needs of its participants and market-wide liquidity more generally, the smooth functioning of FMIs can have direct bearing on the central bank’s role as provider of intra-day or overnight credit. Accordingly, a key objective of FMI oversight and policy is to ensure that FMIs are designed to address day-to-day as well as “extreme but plausible” market conditions to avoid undue reliance on central bank credit. This involves assessing the appropriateness of their routine settlement procedures, their “failure to settle” procedures, and available liquidity resources. Moreover, insights gained through the oversight of FMIs can assist central banks in both anticipating and assessing whether, when, and to whom the provision of intra-day or overnight credit might be warranted.

## 5 Oversight and banking supervision

FMI oversight is also complementary to banking supervision, whether carried out by the central bank or by another supervisory authority, since banks are typically direct or indirect participants in one or more FMIs. When looking at the nature of the entities subject to oversight versus supervision, it is important to note that FMI oversight addresses “systems”, while bank supervision addresses banks as individual institutions. This difference requires different standards, approaches, and analytical tools for each function. At the same time, the actions of overseers and supervisors can complement and reinforce one other. For instance, a supervisor’s understanding of the nature of the risks a bank may face as a participant in an FMI may help inform its supervisory work; likewise, an FMI overseer’s understanding of the nature of the risks that its participants can pose to the FMI may help inform its oversight work.

Although FMI oversight typically focuses more on macro-prudential concerns and bank supervision typically focuses more on micro-prudential concerns, these two areas of concern are interrelated. This is particularly evident when assessing the recovery and resolution plans of each, and the compatibility of their plans in supporting the continuity of their respective systemically important activities. It also becomes clear when assessing the effectiveness and compatibility of the business continuity plans of each for addressing their respective potential operation

disruptions. Moreover, in stress situations caused by financial, operational, or other events, communication between FMI overseers and bank supervisors can help inform and support the compatibility of whatever respective actions each may need to take or decisions each may need to make. Along these lines, desktop exercises and stress tests involving FMIs, their participants, and their respective overseers and supervisors are being increasingly used to assess and to enhance their preparedness.

In conclusion, while the oversight function and the word “oversight” were introduced in the late 1990s to distinguish the oversight activity from the supervisory one, oversight and supervision present many similarities (as testified even by the semantic similarity between “over”-“sight” and “super”-“vision”). They are closely interrelated, and their synergies are overtime increasing.

## 6 Conclusions

Central bank oversight is a core central bank activity to support financial stability. Although relatively new in the history of central banking, the importance of this function is now clearly recognised and typically bolstered with formal responsibilities and authorities. At the same time, the content and the organisation of oversight activities will need to adapt continuously to the evolving financial system and the broader economy.

Innovation, technology and globalisation will undoubtedly continue to change the nature of both the opportunities and the risks that need to be recognised and addressed by FMIs. New FMIs or critical infrastructure may also emerge, as was the case of TRs and, more recently, the emergence of stablecoin arrangements. FMI oversight objectives themselves may also need to expand beyond “safety and efficiency”, for instance to address societal objectives for addressing climate change, “sustainable” economies, and financial inclusion. Last but not least, and in line with the deepening interconnectedness and interdependencies among financial systems and markets around the world, the need for cooperation in overseeing globally important FMIs will continue to increase, not only among central banks but also with other relevant market authorities in both industrial and emerging market economies.

# Chapter 2 – The Eurosystem oversight policy framework

Prepared by Corinna Freund<sup>1,2</sup>

## 1 Introduction

The safe and efficient functioning of financial market infrastructures (FMIs) is a key concern for central banks. FMIs provide the networks through which institutions and financial markets are connected, and financial transactions are cleared and settled. Given the significant economies of scale in their service provision, FMIs concentrate large amounts of financial risks and are highly oligopolistic entities that would be difficult to substitute in case of their malfunctioning. FMIs' major participants are typically large financial institutions that are vital for the interbank and repo markets and that act as major participants in large-value payment systems operated by central banks. In addition, FMI participants are often also monetary policy counterparties of central banks.

The smooth functioning of FMIs is therefore essential to pre-empt adverse effects for FMI participants and consequently for the smooth operation of payment systems and effective monetary policy transmission, for financial market stability, as well as, ultimately, for public confidence in the currency. Against this background, central banks conduct close oversight of FMIs, complementary to their activities as operators of FMIs and catalysts for the development of FMIs.<sup>3</sup>

This chapter describes how the Eurosystem exercises its oversight role and how this framework has evolved since the introduction of the euro. Section 2 recalls the basic elements of the Eurosystem oversight policy framework. Section 3 describes the main milestones and changes in Eurosystem oversight over time. Section 4 concludes and outlines future challenges.

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<sup>1</sup> Dr Corinna Freund is a Senior Lead Oversight Expert in the ECB's Oversight Division.

<sup>2</sup> I am grateful for the input and feedback of Daniela Russo and for the comments of Patrick Papsdorf, Simonetta Rosati and Chrissanthos Tsiliberdis.

<sup>3</sup> See the chapter: "Oversight of financial market infrastructures: a core central bank function".

## 2 Basic elements of the Eurosystem oversight policy framework

### 2.1 Legal basis

According to Article 127(2) of the Treaty on the Functioning of the European Union (TFEU) and Article 3 of the Protocol on the Statute of the European System of Central Banks and the European Central Bank (Statute of the ESCB) one of the basic tasks of the Eurosystem is “to promote the smooth operation of payment systems”. In addition, Article 22 of the Statute of the ESCB states that “The ECB and the national central banks may provide facilities, and the ECB may make regulations, to ensure efficient and sound clearing and payment systems within the Community and with other countries”.

Against this background, the European Central Bank (ECB) and the national central banks (NCBs) have oversight responsibilities to promote the smooth operation of payment systems and the ECB has explicit regulatory powers in this area.

### 2.2 Objectives

In order to attain its basic oversight objectives of FMI safety and efficiency, the Eurosystem develops specific oversight regulations, standards, guidelines or recommendations for the various FMIs. Given the importance of a level playing field for FMIs – both across jurisdictions as well as between FMIs and banks that provide payment, clearing and settlement services on a bilateral basis – the development of Eurosystem oversight standards takes place in a context of increased cross-border and cross-sectoral cooperation among authorities, including central banks, securities regulators and banking supervisors. The Eurosystem provides input for the definition of international standards and EU rules for FMIs; at the same time, it aims to closely align its own standards with global standards and EU requirements.

### 2.3 Scope and activities

The TFEU and the Statute of the ESCB were drafted a time when FMIs were mainly active in the area of payments. Since then, payment, clearing and settlement services have expanded significantly, often with immediate implications for the functioning of euro area payment systems, the effective implementation of monetary policy and the stability of the euro. For example, securities clearing and settlement systems have direct links with euro area payment systems (any securities or derivatives transaction also involves a cash leg) and are key players in the monetary policy transmission process. Therefore, while securities and derivatives FMIs are supervised and overseen by the relevant national authorities, it is recognised that the Eurosystem must be associated to this process in its role of central bank of issue for

the euro.<sup>4</sup> Against this background, Eurosystem oversight has expanded over time, and now addresses payment systems, central counterparties and securities settlement systems, payment instruments, schemes and arrangements, as well as other infrastructures such as TARGET2-Securities, critical service providers, as well as correspondent and custodian banks.

In line with the applicable Eurosystem oversight standards and the SIPS Regulation, the Eurosystem collects relevant information about the activities and the risk management of the relevant FMIs, and assesses that information against its oversight expectations. The Eurosystem may take action to induce change where necessary. The latter may include moral suasion, cooperation with the primary supervisor/overseer, as well as enforcement of applicable Eurosystem requirements. In the case of systemically important payment systems, it is also possible for the Eurosystem to apply sanctions, conduct on-site inspections or request external reviews.<sup>5</sup> The Eurosystem regularly reports on its oversight activities for the various types of FMIs in a dedicated Eurosystem oversight report.

## 2.4 Allocation of responsibilities within the Eurosystem

The Eurosystem shares its oversight responsibilities between the NCBs and the ECB. The aim is to benefit from the Eurosystem's decentralised structure and specialised knowledge, while ensuring that cross-border risks are appropriately identified and addressed, and that the Eurosystem oversight policy stance is consistently applied.

For systems with a clear national anchor, the Eurosystem assigns primary oversight responsibility to the relevant NCB, while for systems without a clear national anchor the Governing Council may also assign primary oversight responsibility to the ECB. A similar allocation of responsibilities also applies in relation to designating the Eurosystem's representative in cooperative arrangements with other authorities.

In all cases, the Eurosystem central bank entrusted with (primary) oversight responsibility promotes the Eurosystem's oversight objectives and coordinates closely with the other Eurosystem members. When representing the Eurosystem in cooperation with other authorities, the relevant Eurosystem representative consults with the other Eurosystem members through a dedicated Eurosystem committee structure on an ongoing basis. Each central bank reports on its oversight policies, assessments and results to the Governing Council of the ECB.

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<sup>4</sup> Further detail is provided in the Chapter "The ECB and Eurosystem role in CCP oversight and colleges".

<sup>5</sup> 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).

## 3 Evolution of the Eurosystem oversight policy framework

### 3.1 The pioneer era: up to the 1990s

Starting in the 1980s, central banks initially sought to promote the safety and soundness of payment and settlement systems indirectly; namely by providing a safe settlement asset, by operating systems which allowed for the transfer of that settlement asset and by seeking to influence the design of systems in which they participated from a user perspective.<sup>6</sup> However, in view of the increased values cleared and settled by privately operated payment systems, and the high concentration of the business in a small number of systems, central banks felt that their more direct and formalised involvement would be necessary.

Against this background, the Eurosystem was provided with an explicit mandate for oversight as part of the adoption of the TFEU and the Statute of the ESCB in 1992.

Central banks started to develop oversight standards, initially focusing on large-value payment systems as the most prominent types of privately owned FMIs at the time. In cooperation with the other G10 central banks, Eurosystem members contributed to the development of global minimum standards for the operation of cross-border and multicurrency netting schemes in 1990.<sup>7</sup> These principles provided the basis for the Eurosystem's positive assessment of the application of five large-value payment systems to process the euro following the introduction of the single currency. In addition, the Eurosystem developed "terms of reference" for legal opinions regarding foreign participants in large-value payment systems to ensure that they would have a robust legal basis in all relevant jurisdictions<sup>8</sup>. In addition, in an early recognition of the significance of technological innovation in payment services, the ECB issued specific oversight expectations in its, Report on electronic money, in 1998.

Finally, in view of the increased role of offshore and multicurrency payment services in global financial markets, the relevant Eurosystem members contributed to the development of the G10 principles for the cooperative oversight of cross-border and multicurrency netting and settlement systems.<sup>9</sup>

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<sup>6</sup> Committee on Payment and Settlement Systems (2005), *Central bank oversight of payment and settlement systems*, May. For the role of user standards, see Chapter 9 of Part 6 of: European Monetary Institute (1997), *Standards for the use of EU securities settlement systems in ESCB credit operations*, Frankfurt am Main, January.

<sup>7</sup> Bank for International Settlements (1990), *Report of the Committee on Interbank Netting Schemes of the Central Banks of the Group of Ten countries*, November.

<sup>8</sup> For further detail on the Eurosystem's oversight role in its pioneer era, see: European Central Bank (2000), *Role of the Eurosystem in payment and settlement systems oversight*, June.

<sup>9</sup> These principles were first outlined in the 1990 report on Interbank Netting Schemes (see footnote 6 above) and subsequently updated in the 2005 CPSS report on central bank oversight (see footnote 5 above).

## 3.2 The building age: up to the global financial crisis of 2008/9

Following the establishment of a general basis for central bank oversight, the Eurosystem significantly broadened and clarified its oversight expectations in the subsequent years, focusing on three main areas:

First, the Eurosystem specified its oversight expectations for payment systems and payment instruments:

As a key milestone in this field, the Eurosystem contributed to the development of the global oversight standards for systemically important payment systems<sup>10</sup> in 2001 which extended on the 1990 principles for cross-border and multicurrency netting schemes.

In view of the increased turnover by some euro retail systems, in 2003 the Eurosystem extended its oversight to retail payment systems, clarifying that systems should comply with oversight expectations commensurate with their economic significance.<sup>11</sup> Systemically important retail payment systems were expected to fully observe the Core Principles for Systemically Important Payment Systems; for less systemically important retail payment systems dedicated Eurosystem standards were outlined.

In response to the increased role of non-cash payment instruments, the Eurosystem began to devote closer attention to safety and efficiency of such instruments settled by euro payment systems, such as payment cards, credit transfers and direct debits. The move towards the Single Euro Payments Area (SEPA) further underlined the need for a uniform approach and a level playing field in the respective oversight. Against this background, the Eurosystem developed a common oversight framework for payment instruments.<sup>12</sup>

Second, the Eurosystem developed with other central banks and securities regulators a joint framework for securities and derivatives FMIs:

Given the growing importance of the securities and derivatives in global financial markets, central banks and securities regulators acknowledged their joint interest in the safe and efficient functioning of the FMIs for securities and derivatives clearing and settlement. The adoption of joint recommendations for securities settlement systems (SSSs) and central counterparties (CCPs)<sup>13</sup> was a key achievement in recognising the respective concerns of authorities and in promoting consistent approaches in regulating, supervising and overseeing the risks of securities and derivatives FMIs.

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<sup>10</sup> Committee on Payment and Settlement Systems (2001), *Core Principles for Systemically Important Payment Systems*, January.

<sup>11</sup> European Central Bank (2003), *Oversight standards for euro retail payment systems*, June.

<sup>12</sup> European Central Bank (2009), *Harmonised oversight approach and oversight standards for payment instruments*, February. On this basis, the Eurosystem also subsequently developed dedicated oversight frameworks for card payments, credit transfers, direct debits, and e-money schemes.

<sup>13</sup> Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) (2001), *Recommendations for securities settlement systems*; and (2004), *Recommendations for central counterparties*.

In the context of the EU single financial market even closer cooperation and alignment of authorities' approaches was needed. Building on the CPSS-IOSCO standards, this led to the development of joint EU recommendations for SSSs and CCPs by the Committee of European Securities Regulators (CESR) and the European System of Central Banks (ESCB)<sup>14</sup>, which the Eurosystem subsequently adopted as its oversight standards.

Third, in step with the development of its oversight function, the Eurosystem took action to increase transparency and accountability regarding its oversight function, promote oversight effectiveness and efficiency, as well as to manage conflicts of interest that could potentially arise from its dual role as FMI operator and overseer.

With a view to supporting FMI owners and operators in understanding and observing oversight requirements, demonstrating consistency in its overall oversight approach, and supporting wider stakeholder accountability, the Eurosystem issued a policy statement in 2009 to describe and explain the Eurosystem's oversight policy framework.<sup>15</sup> At the same time, the Eurosystem started issuing a periodic, Eurosystem oversight report, to inform the public about the Eurosystem's assessment of the safety and soundness of euro area payment, clearing and settlement infrastructures, critical service providers and correspondent banks and its respective oversight activities.<sup>16</sup>

The Eurosystem also took measures to steer its extended oversight activities holistically and in an effective and efficient manner. To this end, the Eurosystem started following a risk-based approach to oversight, to facilitate prioritisation among the various overseen systems and instruments as well as the different sources of risks. This was also supported by extended analytical work on oversight matters.<sup>17</sup>

One basic premise of Eurosystem oversight has always been that consistent oversight expectations should apply for FMIs operated by the Eurosystem and private sector FMIs. In addition, as potential conflicts of interest between the ECB's operational and oversight roles cannot be excluded, the ECB's Directorate General Market Infrastructure and Payments was reorganised by establishing separate working arrangements and reporting lines for FMI operation and oversight up to the ECB's Executive Board.

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<sup>14</sup> Committee of European Securities Regulators (CESR) and the European System of Central Banks (ESCB) (2009), *Recommendations for securities settlement systems and recommendations for central counterparties in the European Union*, June. Committee of European Securities Regulators (CESR) and the European System of Central Banks (ESCB) (2009), *Recommendations for securities settlement systems and recommendations for central counterparties in the European Union*, June.

<sup>15</sup> European Central Bank (2009), *Eurosystem oversight policy framework*, February. The Eurosystem oversight policy framework built on and replaced the previous policy statement: European Central Bank (2000), *Role of the Eurosystem in the field of payment systems oversight*. The Eurosystem oversight policy framework was updated in July 2011 and 2016.

<sup>16</sup> European Central Bank (2009), *Eurosystem Oversight Report*. Further editions of the Eurosystem oversight report were issued in 2011, February 2015, November 2017 and May 2021.

<sup>17</sup> Such work included for example analyses of TARGET2 transaction data, the assessment of central clearing interdependencies in the euro area and the role of client clearing on the basis of data on cleared derivatives transactions available from trade repositories, and contributions to EU-wide CCP stress tests.

### 3.3 After the crisis: enhanced oversight to strengthen financial system resiliency

The global financial crisis of 2008/9 highlighted the systemic risk implications of insufficient risk management and uncertainty in financial markets and spurred significant regulatory reform. FMIs had generally performed well during the crisis, which had also been a key factor in the decision to reduce bilateral clearing of over-the-counter (OTC) derivatives by establishing mandatory central obligations for eligible contracts in CCPs. At the same time, it was agreed that any type of financial risk concentration, including in FMIs, would need to be accompanied by particularly prudent safeguards to pre-empt potential too-big-to-fail risks and also ensure resilience in highly stressed market conditions.

Against this background, FMI oversight was significantly strengthened, including at the Eurosystem level. This included three main strands of work.

1. Oversight requirements were significantly enhanced and the role of regulatory cooperation among authorities was formally recognised:

At the global level, the CPSS-IOSCO Principles of Financial Market Infrastructures (PFMIs) were issued in April 2012. The PFMIs established a common minimum basis for adequate risk management across FMIs, including new types of FMIs such as CCPs and trade repositories for OTC derivatives. In particular, the PFMIs set out higher financial resource standards in relation to credit, liquidity and general business risk, including a new requirement to hold adequate capital to ensure FMI recovery or orderly wind-down at any time. Requirements for FMI governance and public disclosure were also stepped up to facilitate stakeholder involvement and scrutiny. In June 2013, the ECB's Governing Council adopted the PFMIs as the basis for the conduct of Eurosystem oversight in relation to all types of financial market infrastructures.

At EU level, two new regulations, the European Market Infrastructure Regulation (EMIR)<sup>18</sup> and the Regulation on improving securities settlement in the European Union and on central securities depositories (CSDR)<sup>19</sup> established for the first time EU rules for clearing and settlement FMIs, in line with the PFMIs. The new regulations affected oversight in the Eurosystem both in relation to national responsibilities of Eurosystem members for individual FMIs and with respect to the Eurosystem's central bank of issue (CBI) role. The two regulations also established close cooperation between EU supervisors and central banks in developing detailed technical requirements under EMIR and the CSDR.

In the field of retail payments, the revised Payment Services Directive (PSD2)<sup>20</sup> introduced an updated harmonised EU legal framework for payments in view of

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<sup>18</sup> 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.

<sup>19</sup> 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 (CSDR).

<sup>20</sup> Directive (EU) 2015/2366 of the European Parliament and the Council of 25 November 2015 on payment services in the internal market.

significant technological and service innovations and the emergence of new service providers. The PSD2 benefited from input provided by the European Forum on the Security of Retail Payments on security-related issues co-chaired by the ECB<sup>21</sup> and provides for ongoing regulatory cooperation between banking supervisors and the ECB on the development and implementation of the relevant regulatory technical standards. The Eurosystem also further developed its oversight framework for retail payment systems based on the PFMI<sup>s</sup>.<sup>22</sup>

2. Ongoing cooperation with other authorities became an increasingly important part of Eurosystem oversight:

At the global level, the PFMI<sup>s</sup> underlined the need for robust consultation and cooperation among all relevant authorities, including with respect to cross-border and cross-currency risks in FMI<sup>s</sup>.<sup>23</sup> This framework was subsequently transposed into various cooperative oversight arrangements for FMI<sup>s</sup> in which the Eurosystem has been involved as central bank of issue or on the grounds of domestic oversight responsibilities.

In the EU, cooperative arrangements were developed in further detail and legally formalised. Under EMIR, colleges of authorities were established for the purpose of the authorisation and ongoing supervision of EU CCP<sup>s</sup>. With the adoption of the updated EMIR 2 framework in 2019<sup>24</sup>, the Eurosystem as CBI will also contribute to the recognition and ongoing review of major third country CCP<sup>s</sup>. Similarly, the Eurosystem contributes to the authorisation process of central securities depositories under the CSDR in view of domestic oversight competences, the Eurosystem's CBI role and its concerns as central bank in terms of where the cash leg of a securities transaction may be settled.<sup>25</sup>

Finally, the Eurosystem established a cooperative oversight framework for its new TARGET2-Securities infrastructure<sup>26</sup>, even prior to the go-live of TARGET2-Securities in June 2015.

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<sup>21</sup> The SecuRe Pay Forum was established in 2011 to foster a harmonised level of security in retail payments across Europe through voluntary cooperation. It is composed of EU/EEA overseers of payment systems and instruments and supervisors of payment service providers and co-chaired by ECB and EBA.

<sup>22</sup> See: European Central Bank (2016), *Revised oversight framework for retail payment systems*, February.

<sup>23</sup> The PFMI<sup>s</sup> outline five responsibilities for central banks, market regulators and other relevant authorities for FMI<sup>s</sup> in the effective regulation, supervision and oversight of FMI<sup>s</sup>. 'Responsibility E' sets out that central banks, market regulators, and other relevant authorities should cooperate with each other, both domestically and internationally in promoting the safety and efficiency of FMI<sup>s</sup>.

<sup>24</sup> Regulation (EU) 2019/834 of the European Parliament and the Council of 20 May 2019 amending Regulation (EU) No 648/2012 as regards the clearing obligation, the suspension of the clearing obligation, the reporting requirements, the risk-mitigation techniques for OTC derivative contracts not cleared by a central counterparty, the registration and supervision of trade repositories and the requirements for trade repositories.

<sup>25</sup> Further detail is provided in the Chapter "The ECB and Eurosystem role in CCP oversight and colleges".

<sup>26</sup> TARGET2-Securities (T2S) is a Eurosystem infrastructure providing a single, borderless core securities settlement process by offering settlement services to euro area and non-euro area CSD<sup>s</sup> and central banks in central bank money. See other chapters for further information on T2S.

### 3. The ECB started making its oversight role more forceful:

While up to the financial crisis oversight was conducted mainly through moral suasion and soft tools such as standards and recommendations, in 2014 the ECB activated for the first time its powers to issue legally binding requirements with the adoption of the ECB Regulation on oversight requirements for systemically important payment systems.<sup>27</sup>

Following the immediate response to the financial crisis with a significant focus on regulatory changes and the establishment of enhanced cooperative arrangements, much of Eurosystem oversight in the subsequent years focused on ensuring the proper implementation of the revised framework. At the same time, the Eurosystem responded to new or intensified risks arising from technological innovation and structural market changes, notably in the field of cyber risk where the Eurosystem contributed to the issuance of international guidance in 2016 and outlined a comprehensive Eurosystem Cyber resilience strategy for FMIs in March 2017, followed by dedicated Eurosystem cyber resilience oversight expectations (CROE) in 2018.<sup>28</sup>

## 4 Conclusion and outlook

The past twenty years provide evidence of a strong development of the Eurosystem's oversight function. Eurosystem oversight has evolved in line with the expansion of payment, clearing and settlement services, technological innovation, and the emergence of new service providers. As a result, Eurosystem oversight has become more comprehensive in terms of addressees, more demanding in terms of substantive expectations, more formalised in terms of the tools to implement and enforce oversight expectations, and it has been supported by strengthened internal processes and transparency frameworks. In addition, the Eurosystem has significantly stepped up its cooperation with other authorities, both in terms of developing requirements for FMIs and in terms of conducting cooperative oversight on an ongoing basis.

New challenges for Eurosystem oversight are already emerging. For example, advances in digitisation and related new products and services (such as distributed ledgers, digital tokens, stablecoins) and the emergence of new types of service providers will further extend the frontier of mobile payments and will require continuous updates of Eurosystem oversight to ensure a holistic and harmonised approach in line with the “same business, same rules” principle. The Eurosystem is currently in the process of developing a new Eurosystem oversight framework for electronic payment instruments, schemes and arrangements (PISA) in response to

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<sup>27</sup> 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). The ECB published amendments to its SIPS Regulation in November 2017, with the objective of further clarifying requirements for credit and liquidity risk mitigation, incorporating specific requirements on cyber resilience, and assigning additional powers to the competent authorities.

<sup>28</sup> For further detail, see the Chapter “Eurosystem cyber strategy for FMIs”.

the latest developments.<sup>29</sup> Similarly, further work is ongoing in view of extreme stress events which may require the recovery or resolution of FMIs in order to pre-empt moral hazard arising from potential reliance on public sector support.<sup>30</sup> Finally, cooperative arrangements with other authorities should be further developed to support a fully integrated, safe and efficient single financial market in the EU as well as a global level playing field and effective coordination in support of a resilient global financial system.

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<sup>29</sup> For further detail, see European Central Bank (2021), Eurosystem Oversight Report., Box 3 “Oversight framework for electronic payment instruments, schemes and arrangements (PISA framework)”.

<sup>30</sup> For further detail, see the Chapter “The EU Framework for CCP Recovery and Resolution”.

# Chapter 3 – The Eurosystem cyber resilience strategy for financial market infrastructures

Prepared by Constantinos Christoforides and Wiebe Ruttenberg<sup>1</sup>

## 1 Introduction

In the 1970s and 1980s, financial entities, like many other industries, started taking the first steps in using information technology (IT) to digitalise their information and use this newfound technology to automate processes and procedures. The benefits to be gained were numerous and increased productivity, standardisation and reduced costs were major drivers behind this push.

40 years later, the results are clear. Technology is now the lifeblood of an organisation; it is the conduit by which communication within an organisation – and between the organisation and the outside world – happens. Without it, simply put, business is not possible and revenue streams cannot be generated. This is something no one could have ever anticipated, at least not with the breakneck speed that it has occurred. At the time this “invasion” led to the creation of IT Departments responsible for creating and maintaining these new IT systems. Security was only considered insofar as it could be tangibly understood, keep these machines in a locked room and give the key only to people who need it. The concept of “technological risk” was not even considered, even though “hackers” – who were mostly technology enthusiasts – were already proving their existence.

It was not until the late 1990s that it was understood that security of IT systems was something that warranted attention. Naturally, at the time, security was rendered as a purely IT matter. Gradually entities started developing IT security practices, however security was at its infancy and IT systems built by leading vendors at that time were woefully insecure, certainly according to current standards. During the 2000s, while financial entities became more digital and ever more dependent on IT, broadband internet took off and the first significant attacks on IT systems started occurring. It was then understood that IT security is something broader – information security – which was concerned with the holistic safeguarding of information in any form. This led also to the creation of an information security officer, a role which increasingly sat outside of the IT department.

In the 2010s the world witnessed the proliferation of advanced threats and the “weaponisation” of the internet. “Hacktivists” like Anonymous, nation-state attacks

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like Stuxnet, the Bank of Bangladesh “cyberheist”, ransomware attacks – as well as regular news of breaches – became commonplace. The “cyberthreat” was real and the term “cybersecurity” was coined in order to signal a shift from a compliance-based view of security to a threat based one.

## 2 Cyber Resilience

Today a cyberattack may be the cause of a systemic event to the financial ecosystem due to its interconnectedness. From banking trojans affecting individuals, to ransomware attacks and advanced persistent threats, these are only the tip of the iceberg and events have proven that no financial entity is immune. In the meantime, technology is further evolving, becoming more complex and reliance on it is continuing to increase.

In today’s world it is no longer enough for a financial institution to consider if it is likely to be hacked, but rather it should plan for what happens when it is hacked. In other words, it is not just about security and protection anymore, but also about response and recovery. It is no longer only an IT issue, but very much a strategic issue too, as it involves the continuity of the entity.

Therefore, the concept now is one of cyber resilience and the challenge is how to ensure that financial market infrastructures (FMIs) can shift to this way of thinking.

In June 2016, the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) published the Guidance on cyber resilience for financial market infrastructures (Guidance), which required FMIs to immediately take the necessary steps to enhance their levels of cyber resilience.

This was a response to the cyberheist on the Central Bank of Bangladesh earlier that year which made clear to the central bank community that urgent action was warranted.

Later in 2016, on a Eurosystem level it was understood that the key to cyber resilience of FMIs was to strategise and have a clear view of what needed to be accomplished. It was understood that, given the interconnectedness of the financial system, cyber security was not only a matter of national security anymore; a coordinated European approach was in urgent need, at least with regard to the cyber resilience of Europe’s FMIs. Next to that, by that time policymakers and overseers realised that cyber resilience is not a state, but an ever-shifting aspiration, and that central banks and FMIs are all in this together and need to collaborate and communicate to collectively raise the cyber resilience level of Europe’s financial ecosystem. The interconnected financial ecosystem is only as secure as its weakest link.

Against this background, in March 2017 the Governing Council approved the Eurosystem cyber resilience strategy for financial market infrastructures (FMIs). The objective of the strategy is to improve the cyber resilience of the euro area financial

sector as a whole by enhancing the “cyber readiness” of individual FMIs that are overseen by the Eurosystem, and to foster collaboration among FMIs, their critical service suppliers and the authorities. The evolving nature of cyberattacks makes it necessary to ensure that FMIs strengthen their individual level of cyber maturity.

This strategy rests on three fundamental pillars:

- (i) FMI resilience;
- (ii) sector resilience;
- (iii) strategic regulator-industry collaboration.

Throughout the last three years, the European Central Bank (ECB) and the Eurosystem have made significant progress in putting in place the building blocks for enhancing the cyber resilience of the European financial ecosystem and operationalising the strategy across all three pillars. Along with that, the ECB has consistently brought its strategic insights and approach to the global level, especially the G7 and its affiliated working groups, the IMF and the World Bank.

## 2.1 FMI resilience

The Eurosystem has developed three key tools to improve FMI resilience: the cyber resilience survey tool, the cyber resilience oversight expectations (CROE), and the TIBER-EU framework.

### 2.1.1 Cyber resilience survey

In 2017, the Eurosystem sought to create a quick tool for overseers to benchmark FMIs across the EU and gain insight into the cyber resilience posture. The approach consisted of an optimised multiple-choice questionnaire consisting of thirty-two questions which could be completed with (relative) ease by the FMIs and an evaluation methodology. The evaluation methodology provided a tool for overseers to not only benchmark an individual FMI with other FMIs within a Member State and across the EU, but also to track the results of an individual FMI over time. This enabled overseers to identify laggards, understand how the cyber resilience posture of FMIs in general is developing and to identify trends; such as which risk management categories seem to be prioritised and which ones relatively neglected.

The cyber resilience survey is repeated on a biennial basis – the last one having being in 2019. On average, seventy-five FMIs have participated in the survey.

## 2.1.2 Cyber resilience oversight expectations (CROE)

As mentioned earlier, in June 2016, the CPMI IOSCO Guidance on cyber resilience for financial market infrastructures was published and required FMIs to immediately take the necessary steps to enhance their levels of cyber resilience. The aforementioned cyber resilience survey gave insight on the cyber resilience posture of an FMI; however, understanding how to push and improve that cyber resilience posture was needed. For that purpose, the Eurosystem developed the CROE, which is based on the guidance and utilises the CPMI IOSCO principles for financial market infrastructures (PFMIs) to ensure a full and coherent set of levels of expectations. It also provides a path along which an FMI can develop its cyber resilience posture.

The CROE aims to build stronger cyber resilience across FMIs in Europe, and more broadly the financial system. The central banks of the Eurosystem have been working closely with the various FMIs to enhance their cyber resilience, with the CROE serving as a good basis for this work.

The CROE serves three key purposes:

- (i) it provides FMIs with detailed steps on how to operationalise the CPMI-IOSCO Guidance on cyber resilience for financial market infrastructures, ensuring they are able to make improvements and enhance their cyber resilience over a sustained period of time;
- (ii) it provides overseers with clear expectations against which to assess FMIs under their responsibility;
- (iii) it provides the basis for a meaningful discussion between the FMIs and their respective overseers.

The CROE underwent a public consultation in May 2018 and the final version was published in December 2018.

The CROE was also adopted by the World Bank in January 2020 under the Financial Inclusion Global Initiative (FIGI). This initiative aims to strengthen the cyber resilience of payment systems in developing and emerging countries.

On 3 February, the ECB's cyber resilience oversight expectations for financial market infrastructures received the Central Banking Award 2020 for Payments and Market Infrastructure Development.

### 2.1.3 Threat-Intelligence Based Ethical Red teaming (TIBER-EU)

Enhancing the cyber resilience of an FMI is of crucial importance. Equally important, however, is to test whether the security controls operated and introduced by FMIs are effective against real world attacks. FMIs of course already perform various types of security testing such as penetration testing, vulnerability scanning, however:

- (i) this testing does not emulate real world attackers;
- (ii) the staff defending the IT systems know that testing is being performed and are on high alert;
- (iii) the scope of the test may not adequately cover critical IT systems.

This need led the Eurosystem to develop TIBER-EU, Threat Intelligence based Ethical Red Teaming, in order to provide guidance on how authorities, FMIs, threat intelligence and red-team providers should work together to test and improve the cyber resilience of entities by carrying out a controlled cyberattack. TIBER-EU was inspired by CBEST, developed by Bank of England and the Dutch TIBER programme which was developed by De Nederlandsche Bank.

The TIBER-EU Framework was published in May 2018 and subsequently guidance such as the TIBER-EU Services Procurement Guidelines, TIBER-EU White Team Guidance were also published with more supplementary documents such as templates.

The TIBER-EU Framework also aims to harmonise and standardise the approach to threat intelligence based ethical red-teaming across the EU, with the overarching ambition of avoiding the duplication of tests for financial entities active in different European countries. To achieve this aim, the ECB and Eurosystem developed templates to be used in the various phases of the test – such as scoping, threat intelligence reporting, red team testing (planning and reporting) – a final test summary report and an attestation to facilitate mutual recognition.

The overall feedback and response to TIBER-EU has been very positive both within the EU and internationally. By the end of 2019, ten European countries had already adopted TIBER-EU and created their own localised guidance (TIBER-XX), consistent with the spirit of TIBER-EU. More than forty TIBER-XX tests have been conducted by end of 2019 with many more underway for 2020 and beyond. FMIs and financial entities that have undergone TIBER-EU tests have reported that the exercise has given value and insight. The ECB hosts regular TIBER-EU Knowledge Centre meetings for all authorities who are responsible for the respective national TIBER-XX programmes or are interested in adopting TIBER-EU at national level, to share experiences and ensure a harmonised implementation of the framework across Europe.

In November 2019, TIBER-EU received a Cyber Resilience Award at the 2019 FinTech & RegTech Global Awards in Singapore.

## 2.2 Sector resilience

In terms of sector resilience, exercises are a key component of building market-wide preparedness for a cyber incident. In these exercises it is better understood how financial entities in the market are interconnected as well as the reliance on one another and subsequent impact of a potential cyberattack.

In June 2018, the ECB organised the UNITAS exercise, which took the form of a facilitated discussion among market participants on a cyber scenario. The scenario involved a cyberattack on a number of pan-European FMIs, resulting in a loss of data integrity and a knock-on effect on other FMIs. As an outcome of this exercise the need for information sharing, stronger collaboration and strengthening crisis communications among FMIs and their ecosystems was clearly understood.

## 2.3 Strategic regulatory-industry collaboration

Regarding strategic regulatory-industry collaboration, our third pillar, the ECB formally established the Euro Cyber Resilience Board for pan-European financial infrastructures (ECRB) in March 2018, as a forum for strategic discussions between FMIs and authorities at board level. The main objectives are to raise awareness of the topic of cyber resilience; to act as a catalyst for joint initiatives to develop effective solutions for the market; and to provide a place to share best practices and foster trust and collaboration.

Throughout its first meetings – and using the results of the UNITAS cyber exercise as input – the ECRB identified several areas of focus, of which information sharing was taken up with priority.

### 2.3.1 Cyber Information & Intelligence Sharing Initiative (CIISI-EU)

Exchanging cyber information and intelligence among peers within a trusted community allows financial entities to leverage the collective knowledge, experience and capabilities of that community to address the threats they may face. It enables them to make informed decisions about their defensive capabilities, threat detection techniques and mitigation strategies. By sharing cyber information and intelligence, FMIs act in the public interest to support the safe and sound operation of the financial ecosystem as a whole.

While up to 2019, there was wide agreement on the benefits of sharing cyber information and intelligence, it was clear that hardly any financial infrastructure was doing this in a structured and well-organised manner with its peers, due to a lack of central coordination and perceived risks with regards to data privacy and the GDPR.

That is why the ECRB stepped in and launched the CIISI-EU initiative. The CIISI-EU community is comprised of pan-European financial infrastructures, central banks (in their operational capacity), critical service providers, the European Union Agency for Cybersecurity (ENISA) and EUROPOL, as represented in the ECRB. CIISI-EU is a

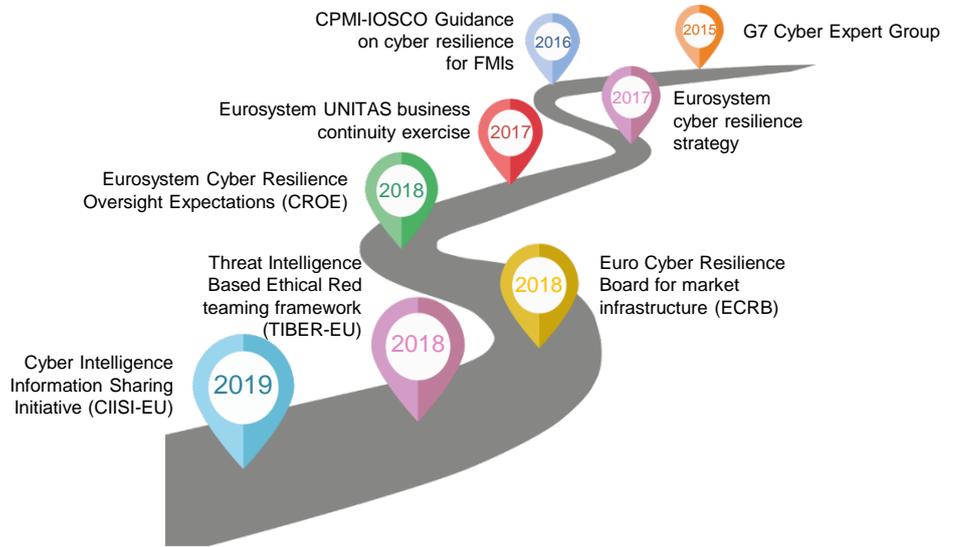
market-driven initiative, for the market and by the market, with the ECB contributing as a catalyst.

The core objectives of CIISI-EU are to:

1. protect the financial system by preventing, detecting and responding to cyberattacks;
2. facilitate the sharing of information, intelligence and best practices between financial infrastructures;
3. raise awareness of cybersecurity threats.

By the end of 2020, CIISI-EU was in its final stages of operationalisation. The CIISI-EU operating model has the potential to serve as an example to other communities and jurisdictions on how to work together, share information and catalyse new initiatives. Documents published on the ECRB pages of the ECB website provide an overview of CIISI-EU and the building blocks of the initiative. Other entities, communities, sectors and jurisdictions considering similar initiatives of their own, may use these documents in a flexible manner that suits their own specificities.

# Key milestones toward enhanced cyber resilience





## Part 5

# Oversight of payments, payment systems and critical service providers

# Chapter 1 – Oversight of payment systems in the euro area

Prepared by Patrick Papsdorf<sup>1</sup>

## 1 Relevance and objectives of payment systems oversight

Amongst financial market infrastructures (FMIs), payment systems provide the most basic and common function as they allow money to flow between banks, other financial market actors and end users. Payments are an essential part of the daily life of each natural and legal person and are crucial for the functioning of the financial system and the real economy. Payments, to function, require a safe and efficient payments ecosystem composed of the asset that is to be transferred (central bank money or commercial bank money), the payment instruments to transfer the asset (e.g. cards, credit transfers, direct debits, etc.), the payment schemes which set rules and standards for their usage, and systems that process, clear and settle the payments.

Ensuring that payments are made in a safe and efficient way is naturally of major interest to a central bank, as payment systems are needed to conduct monetary policy, to contribute to financial stability, for economic activity and to help provide trust in the currency. As overseers, the Eurosystem ensures safety and efficiency through monitoring developments at system and entity level, setting oversight standards for operators and inducing change where needed.

## 2 The evolution of payment systems oversight

The oversight of payment systems has been high on the ECB's agenda since its inception. In fact, oversight-related activities even pre-date the establishment of the European Monetary Institute, the predecessor of the ECB. In 1993, the Committee of Governors of the Central Banks of the Member States of the European Community endorsed a report entitled "[Minimum common features for domestic payment systems](#)", which contained the guiding principles for the preparation of Monetary Union as far as payment systems were concerned. Amongst others the report set out general principles for the minimisation of systemic risk. Back then, the focus was mainly on "large-value funds transfer systems" and not on "retail payment systems". One of the reasons was that same-day settlement and immediate finality was not a critical factor for retail payments in those days.

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<sup>1</sup> Patrick Papsdorf is Head of the Payments Oversight Section in the ECB's Oversight Division. Acknowledgment is made to the contributions of Agnija Jekabsone, Anca Paduraru, Robert Hofmeister and Chrissanthos Tsiliberdis of the ECB's Oversight Division.

From the very beginning, the Eurosystem based its oversight standards largely on relevant international standards. Initially, these were the Lamfalussy standards established in the “[Report of the Committee on Interbank Netting Schemes of the central banks of the Group of Ten countries](#)”, published by the Bank for International Settlements (BIS) in November 1990 (“Lamfalussy report”).<sup>2</sup> In 1998, prior to the start of Stage Three of Economic and Monetary Union, the Eurosystem assessed five large-value payment systems against the Lamfalussy standards.

Since 1990, the international standards for payment systems have evolved substantially, with the active contributions of the ECB and the Eurosystem central banks. In 2001, the Committee on Payment and Settlement Systems (CPSS) published the Core Principles for Systemically Important Payment Systems (‘the Core Principles’). Two important enhancements of the Core Principles were that, first, they added several risk aspects not previously covered under the Lamfalussy Standards and, second, they were designed for all types of systemically important payment systems (as opposed to deferred net settlement systems only; and they also covered relevant retail payment systems).

The Eurosystem adopted the Core Principles as standards for the oversight of systemically important payment systems. Besides large-value payment systems (LVPS), they also covered several retail payment systems. The ECB’s Oversight standards for euro retail payment systems – published in June 2003 – established three main indicators for evaluating the systemic importance of retail payment systems: market penetration; aggregate financial risks; and the risk of a domino effect. Six retail payment systems were subsequently classified as systemically important and assessed against all the Core Principles. Another nine retail payment systems were not considered as being systemically important and were assessed against a subset of the Core Principles. A common assessment methodology was adopted to ensure consistent application of oversight standards across different Eurosystem central banks.

In 2006, the Eurosystem complemented the set of applicable standards by issuing Business continuity oversight expectations for systemically important payment systems (SIPS). This was done against the background of a series of major incidents and disruptions. The purpose was to provide guidance to SIPS operators on how to achieve sufficiently robust and consistent levels of resilience across these systems.

The launch of the Single Euro Payments Area (SEPA) project led to an increase of cross-border payments and, with that, a growing importance of links between retail payment systems. To ensure that any related risks were adequately covered by oversight standards, the Eurosystem adopted dedicated Oversight expectations for links between retail payment systems in 2012. The expectations cover risks related to legal, financial and operational arrangements, as well as issues related to governance, access and efficiency.

In the same year, the Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities

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<sup>2</sup> Since the Lamfalussy standards were developed for interbank netting schemes, not all aspects were directly applicable to real-time gross settlement (RTGS) systems.

Commissions (IOSCO) published the Principles for financial market infrastructures (PFMIs), a comprehensive set of oversight standards for all types of financial market infrastructures that naturally included payment systems. The PFMIs are probably the most significant development in the oversight of FMIs. They reflected on lessons learned from the financial crises and aimed to harmonise – and where appropriate – strengthen the existing international oversight standards.

The Governing Council of the ECB adopted the PFMIs as Eurosystem oversight standards for all types of FMIs in the euro area in June 2013.

Besides formulating standards for FMIs, the PFMIs also outlined general responsibilities for central banks and other relevant authorities. One of these responsibilities was for “all CPSS and IOSCO members [...] to apply the principles to the relevant FMIs in their jurisdictions to the fullest extent allowed by the legal framework in their jurisdiction”<sup>3</sup>. Accordingly, given that the ECB has the power to issue legally binding Regulations, the Eurosystem decided to implement the PFMIs by means of a regulation for systemically important payment systems. This Regulation of the European Central Bank on oversight requirements for systemically important payment systems (SIPS) (ECB/2014/28) (the “SIPS Regulation”) was adopted on 3 July 2014.

### 3 Development of the legal framework for the oversight of systemically important payment systems (SIPS)

The above-mentioned SIPS Regulation is the main legal instrument for payment system oversight and implements the PFMIs for systemically important payment systems in the euro area. The SIPS Regulation is addressed to the operators of systems that are identified as being systemically important and is legally binding on them. In line with the approach taken on the determination of systemic importance, the SIPS Regulation applies equally to retail and wholesale payment systems of systemic importance. Article 1 of the SIPS Regulation establishes clear criteria for determining systemic importance. These include (i) the total values processed, (ii) a system’s market share in terms of volumes, (iii) a system’s cross-border activity, and (iv) providing settlement for other FMIs. The Eurosystem regularly performs an identification and verification exercise to determine which payment systems qualify as being systemically important.

The requirements in the SIPS Regulation are usually identical to those in the PFMIs.

In 2017, the Eurosystem amended the SIPS Regulation to set even clearer requirements on liquidity risk mitigation and new requirements on cyber resilience. It also assigned additional powers to the competent authorities. Furthermore, to provide transparency on the application of sanctions and corrective measures, the ECB adopted two additional legal instruments, namely on the calculation of sanctions and the procedures for imposing them, as well as on the procedures for

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<sup>3</sup> See Explanatory note 4.4.1.

imposing corrective measures. A third decision on the procedure and conditions for exercise by a competent authority of certain powers in relation to oversight of systemically important payment systems was adopted in 2019.

With respect to the decision on the methodology for calculating sanctions for infringements of the oversight requirements (ECB/2017/35), depending on the specific case, sanctions can be imposed on a one-off or periodic basis (until the underlying infringement has been addressed). Moreover, the amount of a sanction would depend on several factors, including the value and volume of transactions processed by the system as well as potential aggravating and mitigating circumstances.

In addition to imposing sanctions, the Eurosystem also has the possibility to impose corrective measures in order to remedy an infringement. According to the decision on procedural aspects concerning the imposition of corrective measures for non-compliance (ECB/2017/33), the process foresees an expedited procedure for addressing cases of non-compliance that are considered serious enough to require immediate action.

The decision on the procedure and conditions for exercise by a competent authority of certain powers in relation to oversight of systemically important payment systems (ECB/2019/25) establishes some general principles for the exercise of powers as well as dedicated procedural aspects with respect to a competent authority's power (i) to obtain information and documents, (ii) to require the appointment of an independent expert, (iii) to require the conduct of an investigation, (iv) to require the conduct of an independent review, and (v) to conduct on-site inspections (as well as the possibility to delegate this power).

In April 2021, the Eurosystem adopted a few amendments to the SIPS Regulation following a public consultation that was launched in December 2020. The main amendments are related to (i) establishing clear criteria for determining which of the Eurosystem central banks is to be designated as the competent authority for conducting the oversight of a SIPS, including the possibility of designating two competent authorities in exceptional circumstances, (ii) allowing for a certain level of discretion in determining systemic importance given fast-moving technological trends and changing consumer preferences, and (iii) introducing a phasing-out period prior to reclassifying a SIPS as a non-SIPS.

## 4 Today's oversight of payment systems in practice

In its oversight activities, the Eurosystem follows a risk-based approach that prioritises with respect to the various payment systems overseen and the different sources of risks. In the oversight of payment systems, the Eurosystem follows a three-step process, in line with definition of oversight, namely:

### **Collect relevant information**

The Eurosystem uses a wide range of information sources, including bilateral contacts with system operators, regular or ad hoc reporting on system activity, and system documentation. For the collection of information, the Eurosystem mainly relies on the SIPS Regulation and on national laws establishing the NCBs' powers to obtain information, or on moral suasion where payment system operators provide information voluntarily at the request of the overseer. Cooperative oversight arrangements with other authorities provide the Eurosystem with further relevant information.

### **Assess the information against its oversight standards and recommendations**

The Eurosystem assesses the information on the basis of oversight standards and recommendations it has developed itself, or in cooperation with other authorities. This allows for a harmonised and systematic oversight of the payment systems, facilitates the practical implementation of oversight, and helps to compare the assessment results across different payment systems. In addition, the Eurosystem conducts regular monitoring, examinations and research relating to developments in the euro area payments ecosystem.

### **Take action and induce change where necessary**

On the basis of the assessment results and if it finds that a particular payment system does not have a sufficient 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, influencing via cooperative oversight arrangements as well as the potential to issue binding regulations and sanctions for euro area payment systems.

Throughout the oversight process, the Eurosystem attaches the utmost importance to constructive cooperation with the overseen entities to ensure there is effective interaction and avoid undue costs of compliance.

## 5 Payment systems under Eurosystem oversight

Since the earlier-mentioned adoption of the Core Principles for Systemically Important Systems, the Eurosystem differentiates payment systems in the euro area into SIPS and non-SIPS. This distinction reflects the relative importance of a payment system for the euro area and is based on quantitative criteria and determines both the applicable oversight requirements and how they are enforced.

## Systemically important payment systems (SIPS)

Following the adoption of the SIPS Regulation, four payment systems were classified as systemically important by the Eurosystem, namely the two large-value payment systems TARGET2 and EURO1, and the two retail payment systems STEP2-T and CORE (FR). In 2020 a fifth payment system was identified as a SIPS, namely Mastercard Clearing Management System.

## Non-systemically important payment systems (non-SIPS)

The Eurosystem distinguishes three types of non-systemic payment systems<sup>4</sup>: non-systemically important large-value payment systems (LVPS), prominently important retail payment systems (PIRPS), and other retail payment systems (ORPS). LVPS, which normally process a considerable number of high-value payments related to financial market transactions, are subject to all principles in the PFMI that are applicable to payment systems. PIRPS and ORPS must comply with a subset of the PFMI, as defined in the revised oversight framework for retail payment systems. Where relevant, non-SIPS also have to comply with some of the Oversight expectations for links between retail payment systems (OELRPS).<sup>5</sup>

## Organisation of oversight activities of SIPS and non-SIPS

To achieve effective and efficient oversight, the Eurosystem shares the oversight responsibilities in a way that enables it to benefit from its decentralised structure while ensuring that its oversight activities are coordinated, and its policy stance is consistently applied throughout the euro area. The common framework is determined at the Eurosystem level and may be complemented by national policies, where necessary. For the purposes of conducting oversight of individual payment systems, including collecting and assessing information and potentially taking measures to induce change, the Eurosystem assigns primary oversight responsibility to the central bank that is best placed to undertake it.

The primary oversight responsibility is usually entrusted to the NCB of the country where the system is legally incorporated, unless the Governing Council decides to assign the primary oversight responsibilities to the ECB, which is the case for the two systemically important payment systems of the EBA Clearing Company (EURO1 and STEP2-T), as well as for TARGET2. This approach was confirmed in the various ECB Decisions of 13 August 2014 which assigned the role of “competent authority” under the SIPS Regulation to the ECB for the oversight of TARGET2, EURO1 and STEP2-T. For CORE(FR), a SIPS with a clear national anchor, this role was assigned to the Banque de France. On 7 January 2020, the ECB’s Governing Council decided to add the Mastercard Clearing Management System in the list of SIPS, where exceptionally two competent authorities namely the ECB and Nationale Bank van België/Banque Nationale de Belgique (NBB) were assigned.

For the oversight of pan-European SIPS, all Eurosystem central banks are invited to participate in the Joint Oversight Teams on a “no compulsion, no prohibition” basis.

<sup>4</sup> See the [list](#) of non-SIPS on the ECB website.

<sup>5</sup> The oversight expectations for links between retail payment systems can be found [here](#).

Outcomes of regular oversight activities are channelled via the Eurosystem's decision-making bodies.

### **Applied assessment methodology**

The oversight of SIPS and non-SIPS is carried out on basis of an assessment methodology which is updated on a regular basis to reflect changes in the SIPS Regulation or the applicable ECB policies and standards. The Eurosystem first published the common assessment methodology for payment systems in 2007 and revised it in 2018. The methodology aims at ensuring a consistent and harmonised application of the SIPS Regulation, and the PFMI. It also promotes full observance of the requirements laid down in the SIPS Regulation/PFMI by helping assessors to identify non-compliance and/or issues of concern that should be addressed.

The Eurosystem assessment methodology takes the CPMI-IOSCO developed assessment methodology as a basis (i.e. the PFMI and Key Considerations applicable to payment systems) 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. The updated version of the assessment methodology covers the requirements introduced by the Revised SIPS Regulation which entered into force in December 2017 and additionally references the Eurosystem's cyber resilience oversight expectations (CROE), which are based on the CPMI-IOSCO Guidance on cyber resilience for financial market infrastructures (June 2016).

### **The case of CLS: cooperative oversight**

CLS was established in 2002 as a specialist institution that settles FX transactions on a payment-versus-payment (PvP) basis thereby eliminating the settlement risk previously associated with foreign exchange transactions. The establishment of CLS (previously called Continuous Linked Settlement) followed a strategy to reduce FX settlement risk that was endorsed by G10 central banks in 1996. CLS provides PvP settlement for FX transactions in 18 major currencies. Today, it has more than 70 direct participants and over 25,000 third-party participants and settles more than the equivalent of 5.5 trillion USD on average per day.

The G-10 and other central banks of issue of CLS-settled currencies (the "participating central banks") have a common interest in the prudent design and management of CLS. Accordingly, the Federal Reserve System supervises CLS and assumes primary responsibility for the oversight of CLS under a cooperative oversight framework (the "Protocol") between the participating central banks. The ECB, which has primary oversight responsibility for settlement of the euro in CLS, represents the Eurosystem on the CLS Oversight Committee (CLS OC) alongside other G10 euro area NCBs.

CLS is subject to Regulation HH which implements the PFMI for certain systemically important FMI in the United States. Regulation HH requires CLS to provide notice on any changes to its rules, procedures, or operations that could

materially affect the nature or level of risks presented by CLS. The Federal Reserve will inform the CLS OC of such changes with a view of identifying potential issues or concerns and the aim of establishing a common view among CLS OC members on the proposed changes.

## 6 Oversight of critical service providers (CSPs) of euro area payment systems

Third-party service providers to whom payment systems contract out parts of their operations, such as their IT infrastructures, can be critical for their smooth functioning. For the Eurosystem, a key principle is that the individual payment systems retain full responsibility for any activity that is material to the relevant system's operation, including responsibility for ensuring that the service provider complies with the applicable Eurosystem oversight policies. In 2015, the Eurosystem developed a Eurosystem policy for the oversight of the critical service providers of euro area payment systems and other financial market infrastructures (FMIs) which are under its competence.

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, or no oversight but monitoring. The policy also sets out how the afore-mentioned different types of oversight are 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 CSP by means of a survey which is conducted every two years, based on a given definition of a CSP and a corresponding taxonomy of essential services. The overseers conduct an analysis on the outcome of the surveys to better understand the ecosystem and the operational interdependencies between FMIs and CSPs and determine which CSPs should be subject to which type of oversight. The Eurosystem conducted surveys in 2016 and 2018 and the vast majority of the reported CSPs were classified as being subject to indirect oversight or no oversight and were to be kept under monitoring should further developments arise concerning criticality. The next survey is being conducted in 2021.

To date, only two CSPs qualified to be subject to direct oversight: SWIFT – a financial messaging provider headquartered in Belgium – and SIA-COLT – a consortium of technology companies headquartered in Italy. SWIFT is subject to a cooperative G10 oversight with the Nationale Bank van België/Banque Nationale de Belgique as the lead overseer (see next section), and SIA is subject to an oversight based on national law by the Banca d'Italia.

# Chapter 2 – An overview of the evolution of the institutional arrangements of the SWIFT cooperative oversight since the late 1990s

Prepared by Johan Pissens<sup>1</sup>

## 1 SWIFT: activities and international dimension

The Society for Worldwide Interbank Financial Telecommunication (S.W.I.F.T.) is an industry owned limited liability cooperative society, set up under Belgian law and governed by its members, who are banks and other types of financial institutions. SWIFT's business is to provide secure messaging services to banks, broker-dealers, and other financial institutions – as well as to market infrastructures – for cash payments or securities settlement. SWIFT was founded in 1973 by 239 banks from 15 countries and since then, there has been a steady increase in the number of financial institutions and countries connected to it. Nowadays, SWIFT operates in an international context with activities in more than 200 countries. In 2019, 8.4 billion FIN messages (+7.4% compared to 2018) were sent, with a daily average of 33.5 million messages.

SWIFT is very active in promoting global standards (be they messaging standards in the strictest sense or operational standards) for the financial sector and serves as the de facto industry forum. There are now over 11,000 live users of whom 2,420 represent shareholders. In 2019, the lion's share of FIN traffic was distributed between payments (48%) and securities (47%) messaging. The Europe, Middle East and Africa (EMEA) region took the largest part (64%) of the total 2019 FIN traffic flow.

SWIFT has particular systemic relevance in Europe, as it is the message provider for a number of systemically important payment systems (such as TARGET2 and Euro1) and of securities settlement systems (such as Euroclear and Clearstream).

## 2 Rationale for the oversight of SWIFT

Central banks are responsible for fostering financial stability and the soundness of financial infrastructures. Because of this, although SWIFT itself is not a payment system, it is subject to central bank oversight due to its critical importance to the

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smooth functioning of the worldwide financial system, in its role as a major provider of messaging and processing services, particularly to clearing, payment and securities settlement systems.

Although there are differences in scope and means of oversight activity at different G10 central banks, it is their common understanding that the oversight of SWIFT should focus primarily on the security and operational reliability of the SWIFT infrastructure. Specifically, the objective of SWIFT oversight is to confirm that it has appropriate structures, processes, risk management procedures and controls in place to effectively manage the risks it may pose to financial stability and to the soundness of financial infrastructures. This oversight does not grant any certification or approval to SWIFT, which remains responsible for the security and reliability of its systems, product and services.

### 3 Evolution of the international cooperative oversight of SWIFT

From the early 1990s onwards, the central banks of the G10 countries started meeting on an ad hoc basis to discuss and review SWIFT's activities from an IT security perspective. At its meeting in December 1997, the Committee on Payment and Settlement Systems (CPSS, now known as the Committee on Payments and Market Infrastructures (CPMI)) endorsed the arrangements for the oversight of SWIFT by formalising the existing relationships: the Nationale Bank van België/Banque Nationale de Belgique (NBB/BNB) would act as lead overseer and would chair the group of CPSS representatives in meetings with SWIFT. In February 1998, new statutes and by-laws of the NBB/BNB were adopted, granting it formal oversight powers. In March 1998, the SWIFT Technical Oversight Group was set up, in which all CPSS members were invited to nominate a representative.

### 4 Protocol with SWIFT

The practical arrangements in the set-up of the oversight of SWIFT are laid down in a protocol signed between SWIFT and the NBB/BNB, in its capacity as lead overseer. The protocol lays down the aims and objectives of the oversight of SWIFT, the general framework and the practical organisation. It also details the procedures for interaction between overseers and SWIFT (identification of contact persons, defining the types of meetings – technical or high-level – in a typical oversight year, as well as their frequency and attendance; procedures for access by overseers to all necessary information at SWIFT, channels and modalities for communicating oversight findings and recommendations, etc.). The protocol is regularly reviewed in order to keep it in line with developments at SWIFT, or on the overseers' side.

## 5 Review of the SWIFT oversight arrangements in 2004

The SWIFT oversight arrangements were reviewed in 2004. To that end, the NBB/BNB and SWIFT revised the existing protocol arrangement between them. The review brought in a number of innovations, which included NBB/BNB setting down the role of the cooperating central banks in Memoranda of Understanding (MoUs), which it concluded with each of the other central banks participating in the oversight of SWIFT. Another innovation related to the steering of the international cooperative oversight of SWIFT. This was no longer to take place at the CPSS but was transferred to the SWIFT Oversight Group – composed of the G10 central banks and the ECB. As a consequence, the ECB's role also changed. Whereas, until then, the ECB had taken part in the senior meetings with SWIFT in its capacity as representative of the chair of the CPSS (a position held at that time by Mr Padoa-Schioppa), it now did so in its own central bank capacity.

## 6 The Eurosystem high-level group for the oversight of SWIFT

The confidentiality arrangements set out in the bilateral MoUs required the ECB to reflect on how best it could timely inform the non-G10 Eurosystem central banks on SWIFT oversight matters if ever the need to do so arose.

To that end the Governing Council decided to set up the Eurosystem high-level group for the oversight of SWIFT. This group brings together representatives from each Eurosystem central bank, is co-chaired by the NBB/BNB and the ECB, and discusses (at least once a year) the NBB/BNB's report on the outcome of the SWIFT oversight activities and the planned SWIFT oversight activities. The aim is also to provide an opportunity to the non-G10 Eurosystem central banks to provide input for future SWIFT oversight activities.

Since its inception in 2005, the Eurosystem high-level group<sup>2</sup> for the oversight of SWIFT has proven to be a useful forum for exchanging information on the oversight conclusions, as well as on the concerns and priorities of non-G10 Eurosystem central banks with respect to SWIFT oversight.

## 7 The current international cooperative arrangement

The international cooperative arrangement for the oversight of SWIFT sets out a framework for oversight by the NBB/BNB and the central banks of the G10/G20 jurisdictions.

**As lead overseer, the NBB/BNB** conducts the day-to-day monitoring of SWIFT activities and coordinates the various working groups:

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<sup>2</sup> In 2019, the Eurosystem High Level Group was replaced by a dedicated session on SWIFT oversight within the framework of the Market Infrastructure and Payments Committee (MIPC).

**The Cooperative Oversight Group (OG)** consists of the G10 central banks (i.e. Bank of Canada, Deutsche Bundesbank, European Central Bank, Banque de France, Banca d'Italia, Bank of Japan, De Nederlandsche Bank, Sveriges Riksbank, Swiss National Bank, Bank of England and the Federal Reserve System, represented by the Federal Reserve Bank of New York and the Board of Governors of the Federal Reserve System) and the chairperson of the CPMI. The OG discusses oversight policy and strategy when it meets, twice a year.

**The Executive Group (EG)** is a sub-group where direct talks with SWIFT's Board and Executive Management are held on the central banks' oversight policy, issues of concern, SWIFT's strategy regarding oversight objectives, and conclusions. The EG represents the OG in discussions with SWIFT and can pass on OG recommendations to SWIFT. The EG members are Bank of Japan, Federal Reserve Board, Bank of England, European Central Bank and National Bank of Belgium, and it meets three times a year.

**The G10 Technical Group (TG)** does the technical fieldwork on important developments within SWIFT and reports back to the OG. Since the TG performs deeper technical analysis, there are four meetings planned each year. At every TG meeting, there is a direct interaction with SWIFT management, internal audit and independent risk functions in order to carry out the technical groundwork for oversight. Skills and knowledge on technological and IT-specific domains are necessary to better understand these developments and their accompanying risks within SWIFT.

**The SWIFT Oversight Forum (SOF)** involves a larger group of countries, who represent a significant part of the SWIFT traffic volume. This working group consists of the G10 central banks (OG) and 15 additional central banks (i.e. Central Bank of the Argentine Republic, Reserve Bank of Australia, Banco Central do Brazil, People's Bank of China, Hong Kong Monetary Authority, Reserve Bank of India, Bank of Indonesia, Bank of Korea, Bank of Mexico, Bank of Russia, Saudi Arabian Monetary Agency, Monetary Authority of Singapore, South African Reserve Bank, Banco de España and Central Bank of the Republic of Turkey). Their membership is aligned with the composition of the CPMI. Five of these Central Bank of the Argentine Republic, Banco Central do Brazil, Bank of Indonesia and Bank of Mexico and Banca de España) joined in 2019. The SOF holds discussions on oversight policy, provides input for OG priorities, and serves as a platform for communication on system interdependencies related to the common use of SWIFT.

## 8 The uniqueness and relevance of the cooperative oversight of SWIFT

A number of aspects of the cooperative oversight of SWIFT are unique; the most striking being the broad scale of central banks involved in the different layers of the arrangement and the fact that SWIFT is not a financial institution, payment system, central counterparty or central securities depository, but a critical service provider to banks and FMIs.

Since the late 1990s, SWIFT cooperative oversight has evolved to become relevant beyond just the narrow scope of SWIFT oversight activities and has been instrumental in helping to addressing a number of other central bank policy discussions. The work of the CPMI on correspondent banking, cover payments and cross-border payments in general, often benefited from the oversight relation that central banks had established with SWIFT, because it provided the channel for accessing SWIFT and for enabling and structuring relevant data gathering.

**The interaction between the cooperative oversight of SWIFT and international standard setting for the good functioning of critical service providers.** Annex F of the Principles for financial market infrastructures outlines five oversight expectations for critical service providers in order to support an FMI's overall safety and efficiency. Although the FMI remains ultimately responsible for its operations, the regulator, supervisor or overseer of the FMI may use Annex F to establish expectations specifically targeted at critical service providers. In the discussions and the preparatory works for drafting Annex F, the CPMI and the International Organization of Securities Commissions (IOSCO) relied extensively on the earlier work of the SWIFT Oversight group, which had, in 2006, finalised the central banks' "High-level expectations for the oversight of SWIFT". These expectations, based on the SWIFT oversight experiences, were intended to be the standards against which to oversee SWIFT, and served as a valuable basis for developing oversight expectations for critical service providers.

**The ECB's roles as participant in international cooperative arrangements.** The 2004 reform of the SWIFT oversight arrangements, with a formalisation of the role of the participating central banks in an MoU with the NBB/BNB, led the ECB towards a reflection on its roles in cooperative arrangements, especially in cases where other Eurosystem central banks (in this case the G10 central banks of the Eurosystem) also participated in the cooperative arrangement on an individual basis. The creation of the Eurosystem high-level group for the oversight of SWIFT proved to an effective solution that served later on as the model to follow for supporting the ECB's roles in the cooperative oversight of CLS.

## Chapter 3 – The oversight of payment instruments and schemes

Prepared by Stephanie Czák-Ludwig, Patrick Papsdorf and Stefan Antimov<sup>1</sup>

The Eurosystem strives to safeguard the soundness and resilience of the payment system, comprising financial market infrastructures (FMIs) and payment instruments and schemes. The aim is to contribute to the stability of the financial system, to support the smooth implementation of the single monetary policy and to support confidence in the euro which is ultimately driven by the security and efficiency of retail payment services to end users. Retail payments are at the same time an area of the payment ecosystem that is subject to the strongest change in the wake of digitalisation.

The ECB's earliest work on payment instruments dates back to shortly after its inception. Namely the *Report on electronic money*, which was published in August 1998 and built on previous analysis conducted under the aegis of the European Monetary Institute (EMI). It outlines inter alia that the issuance of electronic money was likely to have “significant implications for monetary policy in the future. Above all, it must be ensured that price stability and the unit of account function of money are not endangered. A significant development of electronic money could also have implications for the monetary policy strategy and the control of the operational target”. The report also lists a number of regulatory concerns relating to “the efficient functioning of payment systems and confidence in payment instruments, the protection of customers and merchants, the stability of financial markets and protection against criminal abuse” and requests to establish “clear rules on the conditions under which electronic money can be issued”. A number of these considerations were tackled in the E-money Directive 2000/46/EC and 2009/110/EC but remain valid today as shown by the regulatory considerations in 2020 with respect to crypto-assets<sup>2</sup> and in particular stablecoins.

From an oversight perspective, the ECB first gave further details of its oversight expectations for electronic money in May 2003, in its report on *Electronic money system security objectives* (EMSSO). The report included a comprehensive risk analysis and listed security objectives that should be fulfilled by issuers of e-money.

While the market for e-money issuance started to be regulated at EU level, the Eurosystem turned its attention to other electronic payment instruments – namely cards, direct debits and credit transfers – that were strongly and increasingly used in the euro area. The work on cards was completed first and as a result, in January 2008, the Eurosystem published its Oversight framework for card payment

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<sup>2</sup> Proposal for a Regulation on Markets in Crypto-assets, and amending Directive (EU) 2019/1937.

schemes – standards followed in August 2008 by a Guide for the assessment of card payment schemes against the oversight standards. The Eurosystem’s work on direct debits and credit transfers proceeded in parallel.

In February 2009, the Eurosystem published a Harmonised oversight approach and oversight standards for payment instruments<sup>3</sup>, which is the currently applied oversight approach for cards, credit transfer, direct debits, e-money and any other payment instrument that is used SEPA-wide. This framework included five high-level oversight standards (i.e. sound legal basis, comprehensive information being available to all actors, operational resilience, sound governance and financial risks for clearing and settlement) which were inspired by the Lamfalussy minimum standards for netting schemes.<sup>4</sup> In addition, in August 2009 the Eurosystem published the *Oversight framework for credit transfer schemes* and the [Oversight framework for direct debit schemes](#). These were complemented in August 2011 by respective assessment guides for credit transfers and direct debits.<sup>5</sup>

Based on these frameworks and assessment guides, the Eurosystem oversight conducted assessments of individual card payment schemes and other payment schemes. As of 2008, the Eurosystem conducted comprehensive assessments of 23 international and major domestic card payment schemes operating in the euro area against the above-mentioned oversight framework. The sequential Eurosystem assessments were concluded in March 2014. As of 2014, with SEPA schemes becoming more widely adopted, the Eurosystem decided to conduct formal assessments of them. It started with the EPC SEPA Direct Debit (SDD) scheme, as payee-initiated direct debits were considered to entail a higher degree of risk than the payer-initiated SEPA Credit Transfers (SCT) scheme. This assessment was finalised in January 2016 and followed by the SCT assessment that was finalised in June 2019. The assessment of the SEPA scheme for instant payments (SCT Inst) was concluded in September 2018.

Since 2011 the oversight expectations on payment instruments have been closely related to the work conducted by the European Forum on the Security of Retail Payments (SecuRe Pay) (see separate chapter on SecuRe Pay). As a result, the revised assessments guides for credit transfers schemes<sup>6</sup>, direct debit schemes<sup>7</sup> and card schemes<sup>8</sup> integrated SecuRe Pay’s Final recommendations for the security of internet payments of January 2013, as well as the Assessment guide for the security of internet payments of January 2014. They also included aspects of SecuRe Pay’s March 2014 Recommendations for the security of mobile payments as

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<sup>3</sup> See [here](#).

<sup>4</sup> Bank for International Settlements (1990), *Report of the Committee on Interbank Netting Schemes of the central banks of the Group of Ten countries* (the Lamfalussy Report).

<sup>5</sup> European Central Bank (2011), *Guide for the assessment of credit transfer schemes against the oversight standards* and *Guide for the assessment of direct debit schemes against the oversight standards*, August.

<sup>6</sup> European Central Bank (2014), *Guide for the assessment of credit transfer schemes against the oversight standards*, November.

<sup>7</sup> European Central Bank (2014), *Guide for the assessment of direct debit schemes against the oversight standards*, November.

<sup>8</sup> European Central Bank (2015), *Guide for the assessment of card payment schemes against the oversight standards*, February (revised version, based on the *Recommendations for the security of internet payments*).

well as lessons learned from the assessments of payment schemes. In turn, these changes then resulted in further payment scheme assessments against those requirements.<sup>9</sup>

The European payments ecosystem has evolved over the last few years in particular; with ongoing digitalisation, new technologies and new market participants emerging, and the regulatory environment being adjusted.<sup>10</sup> To keep abreast of these changes from an oversight perspective, reflect upon potential implications and challenges, and ensure the continued smooth functioning of the payment system, in 2020 the Eurosystem drafted a new, holistic and forward-looking, harmonised oversight framework for electronic payment instruments, schemes and arrangements (“PISA”). The new framework complements the oversight of payment systems (see separate chapter in this book) and was subject to a [public consultation](#) until the end of December 2020 and comprised: (i) the Eurosystem oversight framework itself, mainly outlining the oversight principles, definitions and organisational aspects; (ii) the methodology to be used to guide Eurosystem assessments; and (iii) a policy to identify the payment schemes/arrangements to be overseen by the Eurosystem. The PISA framework not only builds on the experience gained over the years in the oversight of payment schemes and payment instruments, it also strives – where appropriate and possible – to align the Eurosystem’s approach for payment instruments with the Eurosystem approach for oversight of payment systems<sup>11</sup> and acknowledges relevant requirements set out for the prudential supervision of payment service providers.

According to the proposed PISA framework, the oversight scope comprises: (i) sets of payment instruments which allow the transfer of value<sup>12</sup> between end users (payers and payees), (ii) payment schemes which define standardised procedures for using payment instruments, and newly adds (iii) payment arrangements, which provide functionalities supporting the use of electronic payment instruments. The PISA framework applies to payment schemes or payment arrangements managed by a governance body.<sup>13</sup>

The proposed PISA framework defines electronic payment instruments as “a personalised device(s), software and/or set of procedures agreed between the end user and the payment service provider which is used to initiate or accept a transfer of value via electronic communication”. In other words, they comprise traditional electronic payment instruments (i.e. payment cards, direct debits, credit transfers

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<sup>9</sup> European Central Bank (2018) *Eurosystem report on the gap assessment of card payment schemes against the “Oversight framework for card payment schemes – standards”*.

<sup>10</sup> For example, the recently published draft digital finance package of the European Commission, but also earlier EU legal acts such as the revised *Payments Services Directive (PSD2)*, *Interchange Fee Regulation* and the *General Data Protection Regulation*.

<sup>11</sup> That is, the relevant principles of the [principles for financial market infrastructures](#) (PFMIs) and the [Revised oversight framework for retail payment systems](#) as well as the related assessment methodologies.

<sup>12</sup> The act, initiated by the payer or on the payer’s behalf or by the payee, of transferring funds or digital payment tokens, or placing or withdrawing cash on/from a user account, irrespective of any underlying obligations between the payer and the payee. The transfer can involve a single or multiple payment service providers.

<sup>13</sup> Thus, so-called “crypto-assets”, which are based on a decentralised model with no governance body, do not currently fall under Eurosystem oversight.

and e-money) as well as digital payment tokens<sup>14</sup> (e.g. stablecoins) and the usage of electronic payment instruments to place or withdraw cash. Payment arrangements are defined as providing functionalities supporting the use of the aforementioned electronic payment instruments. The functionalities in this respect include initiation, facilitation or requests to execute transfers of value and the storage or registering of personalised security credentials or data related to payment instruments which support the end users of multiple payment service providers in the use of electronic payment instruments. Accordingly, the scope is envisaged to encompass payment initiation services<sup>15</sup>, payment integration services<sup>16</sup>, electronic wallets storing data or tokenised payment account numbers<sup>17</sup>. This extension of scope should be understood as a Eurosystem response to the increasing importance of such services for retail payments, noting the possible concentration of such services and their possible market dominance, which could have a bearing on the overall safety and efficiency of the payments' ecosystem.

The Eurosystem plans to finalise the PISA framework in 2021. Payment schemes and arrangements are expected to abide by the oversight expectations within one year after publication of the final version.

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<sup>14</sup> A digital payment token is a digital representation of value backed by claims or assets recorded elsewhere and enabling the transfer of value between end users.

<sup>15</sup> According to Article 4(15) of PSD2, "payment initiation service" means a service to initiate a payment order at the request of the payment service user with respect to a payment account held at another payment service provider.

<sup>16</sup> A technical integration of several payment services in a merchant platform.

<sup>17</sup> Tokenisation of sensitive data means replacing them by a surrogate value which is used for security reasons to protect the original data.

# Chapter 4 – European Forum on the Security of Retail Payments (SecuRe Pay)

Prepared by Stephanie Czák-Ludwig, Fiona van Echelpoel and Dirk Haubrich<sup>1</sup>

The **European Forum on the Security of Retail Payments (SecuRe Pay)** was established on 10 January 2011 with the objective to share knowledge and facilitate a common understanding on the safety of electronic payment services and instruments provided within Member States of the EU/EEA, and that of payment systems, payment schemes or payment service providers (PSPs) located in an EU/EEA country. In line with its objective, SecuRe Pay served (and continues to serve) as a common platform for both the European Banking Authority (EBA) and the community of supervisory authorities together with the European Central Bank (ECB) and the European System of Central Banks (ESCB) in their functions as regulators, supervisors of payment service providers (PSPs) and overseers of payment systems and instruments. The European Commission, Europol, ECB Banking Supervision and the European Union Agency for Network and Information Security (ENISA) are associated as observers.

SecuRe Pay focuses mainly on the safety of electronic retail payment services, systems and schemes, including the whole processing chain of electronic retail payment services, irrespective of the payment channel used. In addition to being a forum for sharing knowledge and facilitating a common understanding among authorities, SecuRe Pay also aims to foster cooperation among authorities and to help establish harmonised policies, regulations, recommendations and oversight frameworks in this particular field. Since 2014, when SecuRe Pay became a forum jointly chaired by the ECB and the EBA, its work has additionally entailed the development of EBA technical standards and guidelines.

SecuRe Pay was set up as a voluntary cooperative initiative mainly involving overseers and supervisors. It resulted from a market request for a level playing field in security requirements for retail payments raised at the Single Euro Payments Area (SEPA) High-Level meeting<sup>2</sup> of April 2010, that was reflected in the Eurosystem 7th SEPA Progress Report<sup>3</sup> and led subsequently to an ESCB fact-finding exercise on relevant actors and their roles in setting security requirements for remote electronic payments initiated via phone or the internet<sup>4</sup>. The outcome of this exercise revealed that EU regulation was outdated in this area and there was a clear need to establish

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<sup>2</sup> This is the predecessor of the SEPA Council and the later European Retail Payments Board (ERPB).

<sup>3</sup> European Central Bank (2010), *Seventh Single Euro Payments Area (SEPA) progress report*, October.

<sup>4</sup> This includes the access channel to e-banking services.

a forum where overseers and supervisors could share their insights and knowledge, follow market developments and harmonise oversight and supervisory requirements for the benefit of both the market and the relevant authorities.

The Forum's initial focus was on the security of internet payments and in April 2012, SecuRe Pay issued a public consultation on its draft Recommendations for the security of internet payments. These were based on the experience of regulators, legislators, PSPs and the general public that payments made over the internet were subject to higher rates of fraud than traditional payment methods. The recommendations aimed to help fight payment fraud and enhance consumer trust in internet payments. The report also included best practices for PSPs, governance authorities of payment schemes and other market participants.<sup>5</sup>

While oversight and/or supervisory frameworks for internet payments already existed in many countries, and most were based on the 2003 Basel Committee's Risk Management Principles for Electronic Banking<sup>6</sup>, or derived from oversight standards for payment instruments<sup>7</sup>, the Forum agreed that security requirements needed to be harmonised and further enhanced to reduce vulnerability to, and the likelihood of, fraud. The final recommendations were issued in January 2013.

The EBA, which was established in 2011 with the task inter alia to contribute to the convergence of the regulation and supervision of payment service providers across the EU/EEA, joined forces with the ECB. The two institutions seized on the legal instruments available to the EBA and converted the former SecuRe Pay recommendations into the EBA guidelines on the security of internet payments with the aim to provide a solid legal basis for the consistent implementation of the requirements across the 28 EU Member States. The final guidelines were published on 19 December 2014, setting the minimum requirements that PSPs in the EU were expected to implement by 1 August 2015, in relation to the security of internet payments. At the same time – in late 2014 and early 2015 – so as to facilitate assessments of payment schemes, the Eurosystem integrated the recommendations into the Eurosystem's Oversight Guides for card, credit transfer and direct debit schemes.<sup>8</sup>

At that time, negotiations on the revision of the original Payment Services Directive (PSD) were ongoing in parallel to the EBA issuing the Guidelines. During the consultation phase of the Guidelines in 2014, strong representations were made to the EBA and ECB by the industry, arguing that these Guidelines should not be issued and that the EBA should await the outcome of the PSD negotiations. However, the EBA and the ECB concluded that, due to the continually high levels of

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<sup>5</sup> Best practices were issued as the safety of payments depends on the responsible behaviour of all actors.

<sup>6</sup> Basel Committee on Banking Supervision (2003), *Risk management principles for electronic banking*, July.

<sup>7</sup> European Central Bank (2009), *Harmonised oversight approach and oversight standards for payment instruments*, February.

<sup>8</sup> European Central Bank (2014), *Guide for the assessment of credit transfer schemes against the oversight standards*, and *Guide for the assessment of direct debit schemes against the oversight standards*, November.

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

fraud observed for internet payments, a delay in the implementation of the guidelines until the then expected transposition of the PSD 2 in 2017/18 was not a plausible option. Although not all external stakeholders were aligned on this conclusion, in hindsight the stance of the EBA proved to be wise as the transposition of PSD2 took even longer than initially expected.

Following the success of having established the security of internet payment recommendations, SecuRe Pay began working on Recommendations for payment account access services, that were published for consultation in January 2013, and on Recommendations for the security of mobile payments, that were published for consultation in November 2013. Due to the ongoing PSD2 negotiations at the time, the final recommendations stemming from these documents would no longer be published in their own right but became part of the EBA and ECB input for the development of the security mandates under the PSD2. They were used corresponding to the timelines foreseen by the PSD2 (of which more below). The final Recommendations for the security of payment account access services following the public consultation were nevertheless made available on the ECB website following a public access request.

SecuRe Pay closely followed the PSD2 negotiations and maintained an ongoing dialogue with the Commission during this period through the participation of the latter as observer to the Forum. Once the revised directive was adopted, the EBA, in close cooperation with the ECB, relied on the expertise of SecuRe Pay to prepare a number of payment security related mandates under the PSD2. In particular, SecuRe Pay contributed to the harmonisation of statistical data requirements on fraud reporting for oversight and supervision purposes by providing crucial contributions to the development of the EBA Guidelines on fraud reporting based on Article 96(6) of the PSD2 and contributing to the ECB Regulation on payments statistics which complements the supervisory data with information needed from an oversight perspective. Fraud data is of vital importance in supporting the EBA, ECB and national regulators and supervisors across the EU/EEA to better understand developments in this area and hence make more informed decisions (e.g. on changing oversight standards or the focus of oversight).

In a similar vein, the EBA, in close cooperation with the ECB, relied on SecuRe Pay for the drafting of EBA Guidelines on major incident reporting under Article 86 of the PSD2. To complement the PSD2 requirements, a dedicated Major Incident Reporting Framework for oversight purposes was also established to cover the payment schemes and retail payment systems (RPS) overseen by the Eurosystem.

SecuRe Pay also developed the EBA Guidelines on security measures for operational and security risks (Article 85) that were later integrated into the EBA Guidelines on ICT and security risk management.

Furthermore, a key part of the work of SecuRe Pay over 2015 to 2017 was the development of the draft regulatory technical standards (RTS) on strong customer authentication (SCA) and common and secure communication (CSC) under Article 98 of the PSD2. The RTS are addressed to PSPs specifying requirements for SCA,

exemptions from the application of SCA, and security measures to protect the confidentiality and integrity of personalised security credentials.

## Looking ahead for SecuRe Pay

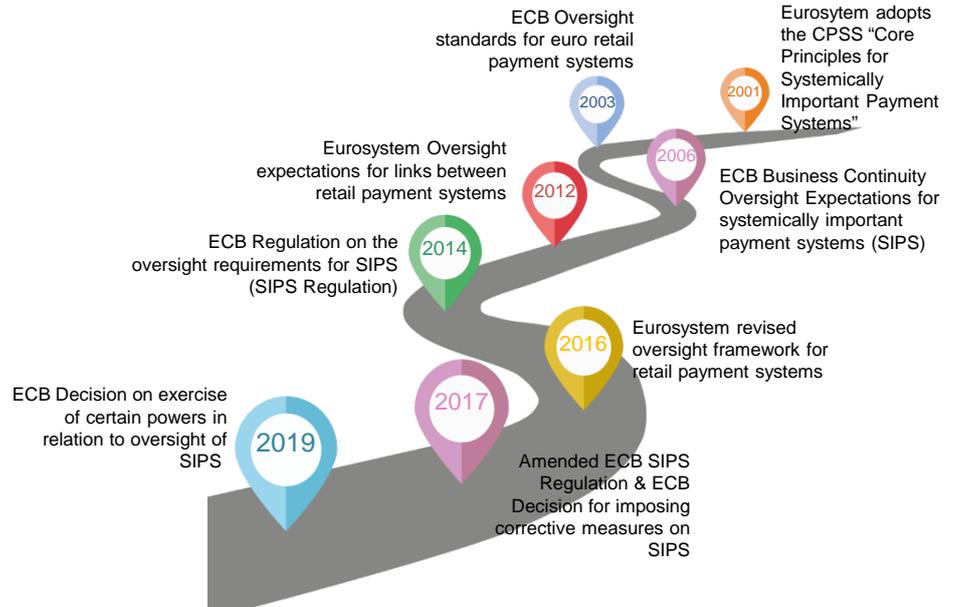
The ECB and EBA – together with the community of ESCB and EU/EEA overseers and supervisors – plan to continue the successful cooperation within SecuRe Pay in the foreseeable future. In this regard, SecuRe Pay will continue to develop and provide input to, or advise on, policies and regulations fostering the safety of retail payment services, systems and schemes, as well as facilitate the consistent implementation of such policies and share know-how among authorities. In particular, SecuRe Pay will contribute to the EBA’s review of the security-related Guidelines and RTSs under PSD2 (e.g. on major incidents) and their adequate and harmonised implementation. In addition, SecuRe Pay will monitor new developments that arise from the constantly evolving payments market.

The Forum has achieved a lot since its initial establishment and the need for its existence remains as relevant today as it did back in 2011.

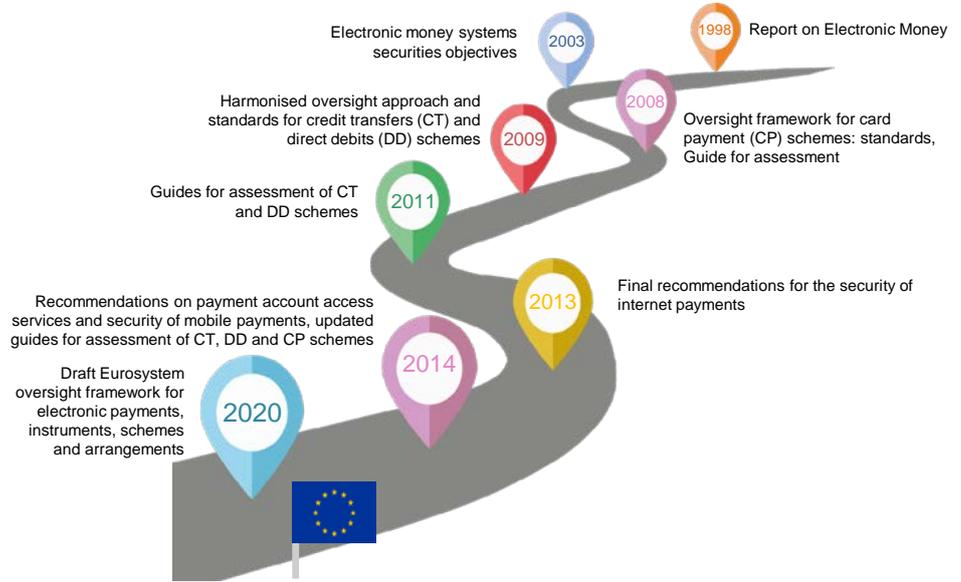
*“From 2014 to 2019, I had the pleasure of co-chairing SecuRe Pay with colleagues from the ECB. During that time, the EBA and ECB proved that two public authorities with different remits, different governance structures and a different geographical scope can work together to strengthen security requirements in a consistent manner. In so doing, we protected consumers, enhanced market confidence, and established a level playing field across all Member States of the EU/EEA. The EBA is looking forward to tackling – together with the ECB, – the even more challenging task of ensuring that these requirements are consistently complied with by firms across the EU.”*

*(Dirk Haubrich, Head of Conduct, Payments and Consumers, EBA)*

# Key milestones for payment systems oversight



# Key milestones for payment instruments oversight



## Part 6

# Oversight of central securities depositories and securities settlement systems

# Chapter 1 – Supervision and oversight of central securities depositories and securities settlement systems

Prepared by Eddy Wymeersch<sup>1</sup>

Central securities depositories (CSDs) and securities settlement systems (SSSs) are core mechanisms in any developed financial system. They ensure the smooth and safe transfer of securities, on which a good part of the financial activity is based. Their organisation, and the related oversight, is a combination of securities and banking regulation and supervision, along with market practices, and common codes of conduct, with links to other parts of the supervisory system, especially in the field of collateral. To analyse this double-headed system of regulation and oversight, the functioning of these mechanisms and the legal regimes applicable to them first have to be examined. The best method is to develop a descriptive presentation of the organisations, with the applicable regulatory regime.<sup>2</sup>

These days, the holders of most publicly traded securities – especially shares of listed companies – have them deposited and registered in their accounts with professionally organised CSDs.<sup>3</sup> CSDs are entities which are especially constituted to safeguard securities in dematerialised format, most of which will be publicly traded securities. The CSDs' particular role mainly relates to safekeeping, holding and transferring these securities – including their use for financial purposes (e.g. as collateral). The securities are registered in the name of the owner, often through the bank that deposited the securities with the CSD, where they are registered in book-entry form, and under a special protective regime with the owner being known to the bank. The rights of the securities holder to collect dividends or other forms of financial benefits and also the exercise of voting rights by the securities' holders or a proxy voting organisation in the holders' name – will be facilitated by the depository on behalf of the owner.<sup>4</sup> The depository's role in the field of company law, has been extended under the Shareholders' Rights Directive II, to involve the nominative identification of shareholders and the exercise of their voting rights.<sup>5</sup> Financial regulation affects the shareholders' company law rights.

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<sup>1</sup> Eddy Wymeersch is a Professor at Ghent University. He has been the co-chair of the ESCB-CESR Group which developed the ESCB-CESR standards.

<sup>2</sup> See Moloney, M. (2008), *EC Securities Regulation*, 2nd ed, Chapter XI.

<sup>3</sup> Initially, securities are subscribed by investors through their banks or brokers. These banks will have the securities registered with the CSD, under the name of the bank, or of the investor.

<sup>4</sup> See Shareholders' Rights Directive II, Directive (EU) 2017/828 of the European Parliament and of the Council of 17 May 2017 amending Directive 2007/36/EC as regards the encouragement of long-term shareholder engagement.

On the role of the CSD in the identification of shareholders, looking through the different layers of intermediaries, see: European Central Bank (2019), [Potential use cases for innovative technologies in securities post-trading](#), January; dealing, among other things, with the electronic voting process, shareholder identification and distributed ledger technology.

<sup>5</sup> See under the Shareholders' Rights Directive II, Article 3 bis. There are several other company law related services (e.g. the administration of corporate actions and redemptions).

Securities deposited with CSDs benefit from the special status applicable to publicly traded securities in terms of fungibility and limited re-use. Other parties – especially banks – may also act individually, as depositories, in accordance with private law arrangements, but would not benefit from the special status applicable to securities held through CSDs, protected against third-party attachment. Trading in listed shares takes place on stock exchanges (or comparable trading platforms) at the prices agreed, and – unless the services of a settlement “internaliser”<sup>6</sup> are used – leads to settlement in an SSS<sup>7</sup>, a market infrastructure where the agreement will be implemented with respect to the items traded and the price to be booked in the accounts. All securities transactions against cash shall be settled on a delivery versus payment (DvP) basis, through a mechanism that links the transfer of securities with a transfer of cash in a way that the delivery of securities occurs if and only if the corresponding transfer of cash occurs and vice versa. In order to avoid settlement risks due to the insolvency of the settlement agent, a CSD settles, whenever practicable and available, the cash leg of the securities transaction through accounts opened with a central bank. If this option is not practical and available, a CSD settles through accounts opened with a credit institution. The transactions settled in an SSS are processed through electronic means, and securities ownership is transferred and settled by book entry. All CSDs operate SSSs. 21 CSDs from 20 European countries are connected to TARGET2-Securities (T2S), a common platform which enables DvP settlement in central bank money. In the euro area, payments may be made through the TARGET2 multilateral payment system.

If the securities are listed and the securities transactions are settled in an SSS, transferred through the market trading this affects the form of the securities and the rules applicable to the settlement of the transaction. The following basic rules are formulated in the CSD Regulation (CSDR)<sup>8</sup>:

- mandatory dematerialisation for all transferable securities issued by issuers established in the Union and admitted to trading or traded on trading venues, after immobilisation or subsequent to a direct issuance<sup>9</sup> in dematerialised form (Article 3);
- mandatory recording in book-entry form in a CSD, where a market transaction in transferable securities or where transferable securities are transferred following a financial collateral arrangement as defined in point (a) of Article 2(1) of Directive 2002/47/EC;

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<sup>6</sup> According to Article 2(1)(11) of CSDR, “settlement internaliser” means any institution, including one authorised in accordance with Directive 2013/36/EU or with Directive 2014/65/EU, which executes transfer orders on behalf of clients or on its own account other than through a securities settlement system. Article 9 CSDR and Commission Implementing Regulation (EU) 2017/393 of 11 November 2016. Settlement can also take place on the books of the internaliser or of a custodian bank.

<sup>7</sup> Which allows the transfer of securities, either free of payment (FOP) or against payment (DvP). Only 29 out of the 130 links are available for FOP settlement. See [here](#).

<sup>8</sup> 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 (CSDR).

<sup>9</sup> The requirement applies to transferable securities as defined in point (44) of Article 4(1) of Directive 2014/65/EU.

- settlement on the intended settlement date and no later than the second business day for trades securities executed on trading venues – parties may agree otherwise, but only in the cases referred to in Article 5(2) of the CSDR;
- settlement fails have to be avoided, and procedures will aim to minimise counterparty and liquidity risk (Article 6);
- finality: once the order enters into a system, it cannot be changed, revoked or modified, even if the purchaser becomes insolvent. In case of late or non-settlement, special settlement discipline procedures will apply to indemnify the other party<sup>10</sup>;
- prevention of settlement fails: on the intended settlement date (T+2) data and securities should be available (Article 6) so that the transaction can be settled;
- procedures to minimise counterparty risks and liquidity risk are in place;
- measures to promote timely settlement by participants apply;
- penalties for the failing party;
- free access to the CSD of choice.

## 1 Oversight and supervision

In most EU Member States, the institutions involved in the functioning of the securities markets play an important public role of organising the core mechanisms by which private companies fund their activities as publicly traded or “listed” companies. A similar role, for which separate institutions have usually been created, is undertaken to ensure funding of the government bond market. As supervision is an essential confidence building device, it was often considered that it should continue to be carried out nationally within the EU.

With respect to private sector securities, issuing and trading normally take place in the stock exchange or in a similar market. Transfer of ownership of these securities – especially shares, but also other instruments – implies the intervention of several FMIs (CSDs, SSSs and payment systems)<sup>11</sup>.

In the European Union, CSD supervision is based on national authorisation and supervision by the local regulator (i.e. the national competent authority in the Member State where the activity was originally registered). In most cases this is the

<sup>10</sup> Commission Delegated Regulation (EU) 2018/1229 of 25 May 2018 supplementing Regulation (EU) No 909/2014 of the European Parliament and of the Council with regard to regulatory technical standards on settlement discipline, postponed 1 February 2022.

<sup>11</sup> For the presentation of a scheme of operations between trading and settlement, see Chapter 2 (“Securities clearing, settlement and custody”) of NBB, [Securities clearing, settlement and custody](#), 2018.

national authority in charge of the securities markets.<sup>12</sup> The supervision of EU CSDs is carried out by the national competent authorities (NCAs) designated under CSDR.<sup>13</sup> The NCAs consult and cooperate with other relevant authorities, which include the authorities responsible for the oversight of each SSS operated by the CSD, the central banks that issue the most relevant settlement currencies and, where applicable, the relevant central banks that act as settlement agent for each securities settlement system. The European Securities and Markets Authority (ESMA) has a role in coordinating the NCAs, in order to ensure supervisory convergence, by adopting common standards and exercising supervision.

CSDs are entitled to the Treaty-based freedom to provide services in other Member States, i.e. they are entitled to be active in other member states whether as a subsidiary, a branch or, in some cases, as a “representative office”. As securities transactions normally also lead to an equivalent financial transaction, a banking institution will be involved in the payment, leading to an additional line of banking supervision. Securities and banking oversight create the framework within which the public interest supervision will be exercised.

Authorised CSDs are allowed to provide the services that are listed in the Annex to the Regulation and which are classified as Section A, B or C<sup>14</sup>, directly relating to the CSD’s business activity and the regulatory status.

Section A covers the core CSD services: notary services, central maintenance services<sup>15</sup> (for securities accounts at the top-tier level) and settlement services. All 23 authorised EU CSDs are registered for this activity.<sup>16</sup>

Section B services are non-banking ancillary services that do not entail credit or liquidity risks; of which 23 cases were registered. Many CSDs declared that they provided non-financial services relating to their notary function<sup>17</sup>, or to shareholder registers and related services (such as their main holding activity, or keeping registers of pledges, fails management, etc.). In the future, company-related services can be expected to increase.<sup>18</sup>

Section C lists the “banking-type ancillary services”, which bring the CSD under prudential supervision. These involve providing cash accounts, accepting deposits, providing cash credit, payment services, guarantees related to securities lending or borrowing or foreign currency-denominated treasury services. The ESMA CSD

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<sup>12</sup> See for the authorisation process, Commission Delegated Regulation (EU) 2017/392 of 11 November 2016 supplementing Regulation (EU) No 909/2014 of the European Parliament and of the Council with regard to regulatory technical standards on authorisation, supervisory and operational requirements for central securities depositories, note 14. The list of competent authorities, including EEA states, has been published by ESMA (ESMA (2021), *Competent authorities for CSDs*, 70-708036281-159, 4 January.2021.

<sup>13</sup> See [the list](#) of NCAs designated under CSDR published by ESMA, Article 12, CSDR.

<sup>14</sup> Source; [ESMA Register](#).

<sup>15</sup> Securities can be held in a physical (but immobilised) form or in a dematerialised form (whereby they exist only as electronic records).

<sup>16</sup> Except Slovakia.

<sup>17</sup> This might include the full inventory of all securities, wherever located.

<sup>18</sup> See Shareholder Rights Directive, footnote 4 above.

Register lists three cases, but there are several cases of indirect provisions of services through other CSDs.

In most EU Member States, there is a separate CSD in charge of servicing the local capital market. Each CSD has to be a company, in order to be authorised separately by the national authority of the Member State where it is located. However, in practice, several of these national CSDs are interconnected, being subsidiaries of one overarching structure.

## 2 The regulatory landscape

The basis for the European supervisory regime is the 2014 Regulation on improving securities settlement in the European Union and on central securities depositories.<sup>19</sup> The securities activity is subject to several EU regulations<sup>20</sup> as applied by the national securities supervisors – the NCAs – or central banks as established in the national legal framework. Many of these rules are based on the 2012 CPSS-IOSCO Principles for financial market infrastructures (PFMIs) and other foundational documents.<sup>21</sup> The securities settlement activity is regulated by the CSDR, with CSDs having to be authorised in accordance with it. ESMA has adopted numerous Level 2 regulatory and supervisory convergence measures.<sup>22</sup> As European regulation, they are directly applicable in Member States, introducing an identical legal basis.

At the EU level, the securities supervisors at the Member State level (NCAs) are in charge of monitoring and enforcing the application of the CSDR requirements. Some basic principles of orderly settlement were laid down in CSDR, such as the principles applicable to the settlement cycle.<sup>23</sup> Freedom of choice of the currency of settlement among EU Member States was also mentioned in the regulation, and this aims to ensure liquidity in the market for the securities concerned. ESMA supports the cooperation between the NCAs of home and host member states.

On the other hand, the payments transactions originated by the securities trade are governed by their own rules and supervised by the prudential supervisors. These are the central banks of the jurisdiction where the CSD has been authorised. For banks under European banking supervision, mention is made of the Eurosystem, referring further to the participating national banks. This double-layered authorisation is deeply embedded in the double-layered regulatory framework.

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<sup>19</sup> CSDR Regulation 909/2014 of 23 July 2014.

<sup>20</sup> For the implementing and delegated acts for CSDR: [See here](#).

<sup>21</sup> CPSS-IOSCO (2012), *Principles for Financial Markets Infrastructures*, April; G30 Working Group (1988), *Clearance and Settlement Systems in the World's Securities Markets*; Giovannini barriers, November 2001, ISIN codes, 1989.

<sup>22</sup> For the list see: ESMA, [Settlement](#).

<sup>23</sup> Settlement has to take place no later than the second business day after trading for transactions in transferable securities executed on a trading venue (Article 5(2) CSDR). Measures to prevent and address settlement fails (mandatory cash penalties and “buy-ins” for settlement fails, settlement fails reporting (Articles and 7 of CSDR), with the caveat that these are supposed to enter into force on 1 February 2022.

The present regulatory system is very detailed and covers all aspects of the CSD's life. There are however some blank spots, for example, little attention has been given to the issues of insolvency of a CSD or of its participants.<sup>24</sup> A regulation has recently been adopted for CCPs<sup>25</sup>, while CSDs have adopted rules and procedures to manage the default of any of their participants to avoid losses and liquidity pressures<sup>26</sup>, with ESMA issuing guidelines to ensure their consistent application – dealing with the subject as a supervisory issue.<sup>27</sup> However, a more systematic analysis of the consequences of insolvency on the different participants would be welcome.

A similar observation can be made about the application of the rules to bond trading or other market segments, as most of the present rules seem to have been developed essentially for the stock market. Public confidence deserves to dispose of a detailed analysis of the equivalent schemes applicable in this market segment.

## 2.1 General requirements applicable to CSDs

The CSDR deals in many aspects with the characteristics of the securities recorded in a CSD book-entry system, but also on the conditions for their transfer. The securities supervision essentially aims at protecting investors and in addition imposing conduct of business rules. The regulation introduces specific provisions on the settlement process, and these have a direct impact on the qualification of settlement through the CSD.

- Only securities in book-entry form which have been admitted to trading on an exchange or on a trading venue regulated by Directive 2014/65/EU and Regulation (EU) No 600/2014 or provided as collateral under the conditions of Directive 2002/47/EC, can be admitted to the CSD regime. This feature is essential to allow for flexible electronic transfers, both locally and between different EU markets.
- Segregation principle: the securities of each participant will be segregated from those of other participants or of the CSD, but clients may agree to omnibus segregation, facilitating collateralisation.
- Client securities may not be used by the CSD for any purpose, except with the client's prior explicit consent.<sup>28</sup>

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<sup>24</sup> Commission Delegated Regulation (EU) 2017/390 of 11 November 2016 dealing with solvency and liquidity risks, with special provisions for CSD offering banking-type ancillary services, note 27. Also see: FSB, Guidance on Central Counterparty Resolution and Resolution Planning, 7 July 2017 and 16 November 2020.

<sup>25</sup> Regulation (EU) 2021/23 of the European Parliament and of the Council of 16 December 2020 on a framework for the recovery and resolution of central counterparties and amending Regulations (EU) No 1095/2010, (EU) No 648/2012, (EU) No 600/2014, (EU) No 806/2014 and (EU) 2015/2365 and Directives 2002/47/EC, 2004/25/EC, 2007/36/EC, 2014/59/EU and (EU) 2017/1132.

<sup>26</sup> Article 41, CSDR.

<sup>27</sup> See [here](#) ESMA, Guidelines on participant default rules and procedures under CSDR: Commission Implementing Decision (EU) 2020/1766 of 25 November 2020, regulatory framework of UK and N.I. equivalent valid until 30 June 2021.

<sup>28</sup> Article 38, CSDR.

- The CSD will verify the integrity of the issue, i.e. that the total number of securities registered in its books is equal to the number of securities registered in the securities accounts of the participants or on owner accounts.<sup>29</sup> A daily reconciliation process is mandatory.<sup>30</sup>;
- Settlement discipline is a core obligation for market participants: settlement must take place at the intended settlement date – this will be the second business day after trading, for transferable securities traded on a trading venue. This rule does not apply to other forms of trading (e.g. private or internalised settlement).<sup>31</sup>
- Settlement finality has to be guaranteed, in accordance with Directive 98/26, as amended.
- Cash settlement in the local currency will take place through accounts in the central bank of issue, where practical and available.
- Trading venues will ensure that transactions are confirmed on the execution date. When the securities or the cash is not available on the intended settlement date, there will be a “settlement fail”. These have to be avoided, as they may destabilise – or even undermine confidence in – the market. Cash penalties may be applied on the failing party. CSDs will need to adopt measures to prevent and address settlement fails (these measures should enter into force on 1 February 2022).

The CSD requirements are detailed through the Commission Delegated Regulation (EU) 2017/392 supplementing Regulation (EU) No 909/2014 of the European Parliament and of the Council with regard to regulatory technical standards on authorisation, supervisory and operational requirements for central securities depositories. The CSDR provides for requirements dealing with corporate governance rules, rules on remuneration, conflict of interest, quality of management and changes in control, applicable to CSDs. These requirements are complemented by the Commission Implementing Regulation (EU) 2017/393 laying down implementing technical standards with regard to the templates and procedures for the reporting and transmission of information on internalised settlements in accordance with Regulation (EU) No 909/2014 of the European Parliament and of the Council. The prudential requirements for CSDs are covered in Commission Delegated Regulation (EU) 2017/390 supplementing Regulation (EU) No 909/2014 of the European Parliament and of the Council with regard to regulatory technical standards on certain prudential requirements for central securities depositories and designated credit institutions offering banking-type ancillary services.

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<sup>29</sup> Article 37, CSDR.

<sup>30</sup> See Article 59, Commission Delegated Regulation (EU) 2017/392 of 11 November 2016, in footnote 14 above.

<sup>31</sup> See also Article 9, CSDR and Commission Delegated Regulation 2017/391 of 11 November 2016.

The CSD NCAs will annually review CSDs' compliance with the CSDR requirements and evaluate the risks.<sup>32</sup> The NCAs will cooperate and exchange information with the banking authorities<sup>33</sup>, as required in Article 22(6) of the CSDR.

The CSD will be subject to the supervisory action of its home supervisor. This supervisory action addresses the characteristics of the securities to be processed by the CSD, or the conditions under which transactions may take place. The EU regulation itself states such specific provisions to issues as: organisational requirements, governance at the board and management level, outsourcing, identification of the controlling shareholders, etc.<sup>34</sup>

The NCAs consult and cooperate with other relevant authorities<sup>35</sup> as referred to under Article 12 of the CSDR, which include the authorities responsible for the oversight of each SSS operated by the CSD, the central banks that issue the most relevant settlement currencies and, where applicable, the relevant central banks that act as settlement agent for each securities settlement system.

From a horizontal view, ESMA has adopted guidelines dealing with the cooperation of the EU authorities under the CSDR, in close cooperation with the members of the European System of Central Banks (ESCB).<sup>36</sup> The guidelines provide for the consultation of authorities involved in the procedure for the authorisation of CSDs under the CSDR; and the communication between the home and host authorities in relation to a CSD wishing to provide cross-border services. Later guidelines concern, among other things, the authorisation procedure.<sup>37</sup> ESMA has published guidelines and Q&As on the implementation of common supervisory approaches in the application of CSDR.<sup>38</sup> A special regime of supervisory cooperation applies when a CSD wants to open a branch, or a subsidiary in another state.<sup>39</sup> Peer reviews will be undertaken, and in case of disagreement on the outcome, the procedures of Article 19 of the ESMA regulation will be applied. Cooperation regulation applies to

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<sup>32</sup> See Articles 40 to 45 of Commission Delegated Regulation (EU) 2017/392 of 11 November 2016, *ibid.* footnote 14.

<sup>33</sup> See for example, in the case of the Belgian authorities, the Nationale Bank van België/Banque Nationale de Belgique has declared it will seek the advice of the (securities supervisor) to protect the interest of investors in financial instrument. See footnote 48.  
"The Nationale Bank van België/Banque Nationale de Belgique seeks the FSMA's advice on aspects that fall under the latter's perimeter of competence for CSDs as part of its tasks of ensuring compliance with rules guaranteeing the sound operation, integrity and transparency of financial instruments markets, as well as its work on ensuring compliance with the rules for protecting the interests of investors in financial instrument transactions. A protocol setting out the cooperation arrangements has been concluded."

<sup>34</sup> See Article 26 e.s. of the CSDR.

<sup>35</sup> See the [list](#) of relevant authorities under CSDR, published by ESMA.

<sup>36</sup> See Article 14(2) of the CSDR referring to Article 16 of EBA Regulation 1095/2010, on Guidelines and Recommendations.

<sup>37</sup> ESMA (2014), *CSDR Guidelines on cooperation between authorities under Articles 17 and 23 of Regulation (EU) No 909/2014*, 392, 11 July.

Also see footnote 10 on the authorisation procedure and on the provision of services in another Member State, implying the non-objections of both states. See [here](#).

<sup>38</sup> See [ESMA updates the CSDR Q&As](#).

<sup>39</sup> In which case, the authority of the receiving state will have to be "consulted" (CSDR Article 16(6)). For branches an information procedure will apply (CSDR Article 23(1)).

CSDs active on a cross-border basis.<sup>40</sup> More elaborate cooperation agreements, including the setting up of a college of supervisors<sup>41</sup>, will be necessary if the activities in the host state have become of “substantial importance”.

## 2.2 Prudential supervision

A separate line of supervisory action applies to the financial transactions, generated by settlement instructions sent / processed through the CSDs. Where the CSD has been authorised to provide banking-type ancillary services and, where banking services are involved, banking regulation will apply. This will be the case when the CSD offers to settle the cash leg, or offers the wider range of financial services<sup>42</sup>, referred to as “banking-type ancillary services” in CSDR. More complex schemes will apply in multinational structures, with banking supervisors and securities supervisors both being involved in the prudential or investor protection aspects of the group. The CSD competent authorities are designated at national level in accordance with Article 11 of CSDR; where a Member State designates more than one competent authority, it shall determine their respective roles.<sup>43 44</sup>

Where banking supervision applies, the banking supervisor will be responsible for a number of requirements relating to the regulatory functioning of a CSD, which are referred to under “prudential requirements” in the CSD Regulation<sup>45</sup>; One of these requirements is that CSDs will have to develop a “sound risk-management framework”, which must be approved when the CSD is authorised. This framework will include the legal<sup>46</sup>, business, operational, and other direct and indirect risks; including measures to mitigate fraud and negligence. Among the latter, the anti-money laundering (AML) rules for CSDs (e.g. active for foreign clients or in foreign continents) deserve particular attention. Among the operational risks, IT risks also occupy a prominent place, the entire business activity being based on IT tools at the CSD, including its relations with clients and other parties.<sup>47</sup> Incidents due to insufficient business continuity and disaster recovery process may cause damage throughout the CSD’s entire area of activity. The European Banking Authority (EBA) has developed, together with the ESCB and ESMA, regulatory standards defining

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<sup>40</sup> Commission Implementing Regulation (EU) 2017/394 of 11 November 2016 laying down implementing technical standards with regard to standard forms, templates and procedures for authorisation, review and evaluation of central securities depositories, for the cooperation between authorities of the home Member State and the host Member State, for the consultation of authorities involved in the authorisation to provide banking-type ancillary services, for access involving central securities depositories, and with regard to the format of the records to be maintained by central securities depositories in accordance with Regulation (EU) No 909/2014 of the European Parliament and of the Council.

<sup>41</sup> ESMA (2018), Guidelines - On the Process for the Calculation of the Indicators to Determine the Substantial Importance of a CSD for a Host Member State, ESMA70-708036281-67, 28 March.

<sup>42</sup> Refers to a “banking -type ancillary services, as defined in Section C of the Annex to the Regulation, see footnote 11.

<sup>43</sup> For Euroclear, the NBB is competent for licensing and supervision in general, while the FSMA act in an advisory mode for investor protection matters, as defined, in [Article 1, RD 11 June 2015](#).

<sup>44</sup> For example, Clearstream Luxembourg is supervised by the CSSF, in charge of Luxembourg securities supervision, while Bafin, the German banking supervisor, is responsible for Clearstream Banking.

<sup>45</sup> Article 42 e.s., CRD Regulation.

<sup>46</sup> Article 43(3), CRD regulation including risks from conflicts of laws across jurisdictions.

<sup>47</sup> Article 45(3), CRD regulation, business continuity policies and disaster recovery plans.

the main prudential requirements to be met by CSDs and credit institutions offering banking-type ancillary services. These standards have been adopted in an elaborate Commission Delegated Regulation<sup>48</sup>, introducing the main tools providing prudential instruments to address the risks identified/ mentioned in the EU regulation<sup>49</sup>, such as the constitution of different capital instruments as defined in the EU banking regulation, differentiated risk-wise<sup>50</sup>, but also rules on collateral, haircuts, etc. This Regulation applies to both CSDs and credit institutions offering banking-type ancillary services, adapting the capital requirements in accordance with the different risk categories. The Regulation also provides a “prudential framework for credit and liquidity risk”.<sup>51</sup> Reporting will be addressed to the prudential supervisor and to the CSD’s competent authority<sup>52</sup>

ESMA publishes the list of relevant authorities annually, including the central banks issuing the most relevant currencies in which settlement takes place, or in whose books the cash leg of an SSS operated by a CSD is settled.<sup>53</sup>

### 3 Conclusion

The present chapter aims to give an overview of the rules applicable to CSDs in Europe, with special attention to rules related to securities and prudential supervision. The CSDs are governed by a significant range of European regulations and regulatory instruments. Many authorities are involved in the supervisory process: the national competent authorities apply the rules – which are developed by the European Supervisory Authorities (ESAs) and especially by ESMA and EBA – in cooperation with the central banks. The fundamental Regulation is a Level 1 EU regulation of the European Parliament and Council.

The overall view is that of a quite complex system, rooted in and applied by national institutions (the national CSDs), decentralised at the Member State level but related to each other through a system of operational and business links, some of these CSDs being part of the same groups of companies. The overall system is still working quite well, although calls have been made for simplification and integration.

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<sup>48</sup> Commission Delegated Regulation (EU) 2017/390 of 11 November 2016 supplementing Regulation (EU) No 909/2014 of the European Parliament and of the Council with regard to regulatory technical standards on certain prudential requirements for central securities depositories and designated credit institutions offering banking-type ancillary services.

<sup>49</sup> Article 47, CSDR. Including for CSDs or banks providing banking -type ancillary services. The regulation provides a “prudential framework for credit and liquidity risk”.

<sup>50</sup> Article 47, CSDR. A plan will be developed by the CSD, providing for adequate own funds, allowing it to cover, inter alia, operational, legal, custody and the going concern risk, or risks due the winding down and restructuring. For the formulation of the requirements, reference is made in many instances to Regulation 575/2013 (Capital Requirements Regulation (CRR) applicable to banks).

<sup>51</sup> Article 17, Delegated Regulation 2017/390., note 27.

<sup>52</sup> See Article 60, CSDR, and Article 39, Delegated Regulation (EU) 2017/390, referring to the prudential authorities under CRD IV and CRR. Will there still be a need for a separate prudential regime, apart from that of banking. See [here](#).

<sup>53</sup> Article 2, Commission Delegated Regulation (EU) 2017/392 of 11 November 2016 (see also footnote 14); ESMA (2021), *Relevant Authorities for Central Securities Depositories (CSDs)*, 70-151-887, 4 January.

Substantial integration has been achieved by the introduction of TARGET2 Securities, and this is the recommended model for further integration.

# Chapter 2 – The user standards

Prepared by Daniela Russo and Beata Wróbel<sup>1</sup>

## 1 Introduction

Central banks are generally concerned about the financial soundness of securities clearing and settlement arrangements because any disturbance affecting settlement in securities markets has the potential to spread to payment systems and to the financial sector in general.

At the start of EMU, in 1999, the preparatory work for implementation of the single monetary policy and of the TARGET system (including the possibility of granting intraday liquidity to TARGET participants) for Stage Three of Economic and Monetary Union (EMU) gave the European Monetary Institute (EMI)/European Central Bank (ECB) an additional reason for concern about the smooth functioning of securities settlement systems (SSSs). In particular, as Article 18 of the Protocol on the Statute of the European System of Central Banks and of the European Central Bank (Statute of the ESCB) states that ESCB lending operations must be based on adequate collateral, special attention had to be paid to the settlement procedures used for those debt instruments which were considered eligible for collateralising the monetary policy and payment system operations of the ESCB. Moreover, there was the need to ensure that these settlement procedures would: (i) prevent the central banks from assuming inappropriate risks in conducting monetary policy or intraday credit operations; and (ii) ensure the same level of safety for all central banks' operations throughout the European Union, regardless of the settlement method.

At the start of EMU, there was no regulatory framework for oversight of SSSs at EU level – even at global level there were no international standards agreed and established by relevant authorities – and, furthermore, the legal basis for setting oversight standards for SSSs was uncertain.

For that reason, in January 1998 the ESCB published Standards for the use of EU securities settlement systems in ESCB credit operations (the user standards)<sup>2</sup>. Their objective was to limit the risks to which the ESCB would be exposed in settling its credit operations (which as referred to above, must be based on adequate collateral under the Statute of the ESCB). The user standards were therefore intended to apply only to SSSs (and links between them) and to be qualified for use by the ESCB in that respect. These standards were not intended to reflect aspects of the oversight or supervision of SSSs, although they were partially addressing the gap that the lack of oversight/supervision standards had created. In defining standards, the EMI and the

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<sup>2</sup> See [here](#).

EU national central banks benefited from discussions with other regulatory authorities, especially the International Organization of Securities Commissions (IOSCO), the G10 central banks and market participants – in particular operators of SSSs. The user standards were the first example of “multi-jurisdictional” standards set by authorities for SSSs.

Originally conceived as ESCB standards, over time they turned into Eurosystem user standards.

## 2 Main requirements

The nine user standards addressed, respectively: (1) legal soundness, (2) settlement in central bank money, (3) custody risk, (4) regulation and/or control by competent authorities, (5) transparency of risks and conditions for participation in a system, (6) risk management, (7) intraday finality, (8) operating hours, and (9) operational risk.

It is worth noting that the User Standards were elaborated to ensure the smooth implementation of monetary policy operations, and therefore they were in many cases more stringent than similar oversight/supervisory requirements. This is especially true for Standards 2, 3, 7 and 8.

Standard 2 required the use of central bank money for the delivery versus payment (DvP) settlement of ESCB credit operations. Normally securities transactions could be settled in either central bank or commercial bank money. However, central bank operations are settled by definition in central bank money since they are affected by a central bank in its own currency (i.e the currency for which it is the central bank of issue). This explains why central bank money is the only acceptable settlement asset for these transactions. Standard 2 also introduced the settlement on DvP basis as a formal requirement for the first time.

Standard 3 addressed custody risk. To limit custody risk, SSSs were required to have either a unique and direct relationship with the issuer of the asset or a direct link with an SSS with that relationship. This standard also provided indications on how to ensure adequate protection to the ESCB in case of securities issued through one or more depositories (as was the case with Eurobonds).

Standard 7 addressed intraday finality of settlement and required SSSs to provide facilities to settle certain ESCB operations (those involving intraday and overnight credit) with intraday finality so that settlement cannot be reversed or unwound. While the smooth functioning of collateralised money markets would generally require (at least) end-of-day finality, in order to meet this standard, SSSs used for the settlement of central bank transactions had to implement (by 2002) procedures allowing the option of intraday DvP settlement in central bank money, in the form of real-time gross settlement, or a series of batch processes with intraday finality. The basic idea was to ensure the same level of finality to both a payment and a securities leg of a transaction linked by a DvP arrangement. Since the settlement of the cash

leg in central bank money was immediately final in the central bank books there was a need to ensure the same level of finality also to the securities leg transactions.

Standard 8 aimed at harmonising operating hours and days. It did not address specific oversight/stability concerns. However, common opening and closing times for availability and transfer of collateral was an absolute requirement for the implementation of the single monetary policy.

### 3 Successful experience

The user standards were basically enforced by moral suasion. SSSs not complying with the user standards were not sanctioned nor prevented from operating.

A positive result from the assessment against the user standards allowed the respective SSS or link to be considered eligible for use in Eurosystem credit operations. If an SSS or link did not meet the requirements of the standards, they could still be used, but only under additional conditions introduced in order to mitigate the risks that their use could have created for the central bank community. Non-compliant SSSs were also required to commit to undertake the necessary measures in order to meet ESCB standards and submit a plan for their implementation within a reasonable timeframe.

The ECB published the list of eligible SSSs and links – along with their conditions of use, where required and updated the list as new eligible SSSs/links emerged.

The user standards proved very successful in enhancing the safety features of EU SSSs. Thanks to them, DvP procedures were introduced for the first time in all SSSs: special attention was given to custody risk for securities not issued in SSSs, operating hours of most SSSs were extended to settle securities transactions in a timely and harmonised way, and significant progress was made in addressing operational risk. In relation to the latter, Standard 9 introduced for the first time a benchmark for the resumption time in case of operational disruption. Before that there were cases in which the resumption and the reconciliation procedures could take days or even weeks!

### 4 Further development in the application of the user standards

With the development of international and European regulatory and oversight standards for SSSs and (International) Central Securities Depositories (ICSDs)<sup>3</sup>, the Eurosystem has identified opportunities to streamline the assessments conducted against the user standards by taking into account the outcomes of oversight assessments and in 2013 it developed the Framework for the assessment of

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<sup>3</sup> CPSS-IOSCO (2001), *Recommendations for securities settlement systems*; ESCB-CESR (2009), *Recommendations for securities settlement systems*; CPSS-IOSCO (2012), *Principles for financial market infrastructures*.

securities settlement systems and links to determine their eligibility for use in Eurosystem credit operations (the user assessment framework).<sup>4</sup> This approach prevented duplication between oversight and user assessments, and similar standards and requirements. It also allowed user assessments to focus on a limited number of concerns and risks – specific and unique to the user perspective. Under the user assessment framework, the assessment of SSSs and links between them has been conducted under a two-layer approach. For user standards which overlapped with oversight requirements, the assessment relied on the oversight assessments of SSSs which constituted the first layer of the user assessment. For user standards that reflected specific requirements related to the use of SSSs in Eurosystem credit operations – and which therefore were not covered by oversight standards – a dedicated assessment was conducted which constituted the second layer of the user assessment.

The implementation of T2S brought another opportunity for streamlining the user assessments and the user assessment framework was updated in 2014 with a view to its go-live in 2015. In recognition of the fact that T2S offered several features of relevance, from a Eurosystem user perspective, that were common to all SSSs participating in T2S (“T2S common features”), these features could be assessed at T2S level instead of at the level of individual SSSs. Furthermore, since any cross-system settlement is conducted in T2S in the same way as settlement within a single SSS, links between SSSs participating in T2S could, in principle, be assessed within the scope of the respective SSSs’ assessments and not on an individual link basis. Although the user assessment framework introduced considerable procedural simplifications, it continued to ensure a high-level of protection for the Eurosystem against losses in the conduct of its credit operations.

The advent of the Central Securities Depositories Regulation (CSDR) in 2014, provided the opportunity to consider moving away from the user assessment framework as the directly applicable rules of the CSDR ensured that all EU CSDs are subject to identical requirements which, to a large extent, overlap with Eurosystem user requirements. As a result, as of 2018, the user assessment framework for CSDs authorised under the CSDR was replaced by a new eligibility regime, under which eligibility of SSSs/links for use in Eurosystem credit operations, is based on the fulfilment of two criteria. Firstly, that the CSD operating the SSS/link complies with the requirements for authorisation laid down in the CSDR and secondly, that the national central bank (NCB) of the Member State in which the respective SSS operates, has set up and maintains appropriate contractual or other arrangements with the CSD operating the SSS, which ensure continuous compliance with the specific user requirements laid down in the General Documentation.<sup>5</sup>

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<sup>4</sup> See [here](#).

<sup>5</sup> Guideline (EU) 2015/510 of the ECB of 19 December 2014 on the Implementation of the Eurosystem Monetary Policy Framework (General Documentation).

## 5 Development of user standards to triparty arrangements

Several (I)CSDs in the euro area provide triparty collateral management services (TCMS), enabling their customers to optimise the management of their collateral while mitigating their counterparty credit risks and other exposures across different financial products and markets, including central bank credit operations. In this context ICSDs act as triparty service providers (TPAs) responsible for the management of collateral by processing instructions on behalf of both the collateral giver (e.g. Eurosystem counterparty) and the collateral taker (e.g. Eurosystem). To enhance Eurosystem collateral management services, as of 2014 the Governing Council allowed the use of cross-border triparty collateral services to be offered by (I)CSDs acting as TPAs for collateralisation of Eurosystem credit operations and defined the features of the generic models for providing these services.

To ensure safety and efficiency of these services, TPAs used in Eurosystem credit operations have, since 2013, been subject to the assessment from a Eurosystem user perspective. Considering that those cross-border and domestic triparty collateral management services to be used for the Eurosystem credit operations have to be provided by eligible CSDs/SSSs, the user assessment of the TPAs does not reassess aspects already covered in the assessment of the relevant SSSs and is limited to specific aspects related to TPA services. Initially the assessment was conducted against the Standards for the use of EU securities settlement systems in ESCB credit operations (the user standards). However, following the adoption of the CSDR, the requirements were reviewed in 2017 and a specific framework developed – Eurosystem standards for the use of triparty agents in Eurosystem credit operations. The current user requirements cover: (1) entitlement to securities held with TPAs and pledged to central banks, TPAs' obligations towards central banks, liability regime, etc.; (2) handling of corporate actions, substitution of collateral and retention of cash proceeds stemming from corporate actions; (3) handling of Eurosystem eligibility criteria for assets and mobilisation channels; (4) risk management procedures applicable in some specific circumstances; and (5) opening days and operating hours of TCMS.

# Chapter 3 – ESCB-CESR recommendations for securities settlement systems and central counterparties in the European Union

Prepared by Elias Kazarian<sup>1</sup>

## 1 Introduction

**A pan-European initiative to establish a harmonised regulatory and oversight framework for post-trade arrangements.** In October 2001, the European System of Central Banks (ESCB) and the Committee of European Securities Regulators (CESR)<sup>2</sup> set up a working group (WG) to develop standards for securities settlement systems (SSSs) and central counterparties (CCPs) in the European Union (EU). At a later stage, representatives of the European Commission and the Committee of European Banking Supervisors (CEBS) joined the WG. Considering the specificities of the European post-trade arrangements, and the Eurosystem requirements<sup>3</sup> the standards aimed to go deeper and be more stringent than the recommendations for SSSs of November 2001 and the recommendations for CCPs of November 2004, issued by the Committee on Payment and Settlement Systems and the Technical Committee of the International Organization of Securities Commissions (CPSS-IOSCO).<sup>4</sup>

**An extensive consultation process with the stakeholders.** The WG sought the views of relevant stakeholders at different stages during the working process by launching several public consultations, organising open hearings, and arranging seminars, including a seminar for central banks and securities regulators of eastern European countries before joining the EU. A wide range of European and international associations as well as securities market representatives largely welcomed the initiative and their views were addressed by the WG.

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<sup>2</sup> CESR was the predecessor of the European Securities and Markets Authority (ESMA). It was an independent committee of European securities regulators established by the European Commission on 6 June 2001. Its role was to improve the coordination among securities regulators, act as an advisory group to assist the European Commission, and work on implementation of community legislation in EU member states.

<sup>3</sup> Initially, the Eurosystem was aiming at replacing the user standards (see separate chapter on the user standards) with ESCB-CESR recommendations. At the end, the idea was partially abandoned because certain stringent requirements (e.g. exclusive settlement in central bank money) were not justified, other than for monetary policy operations.

<sup>4</sup> In 2012, the CPSS-IOSCO recommendations were replaced by principles for financial market infrastructure (PFMIs).

### **In 2009, the WG revised its work and issued the ESCB-CESR**

**recommendations**, taking into consideration recent regulatory and legal developments. In light of the financial crisis in 2007 and the risk posed to financial stability by the growing scale of over-the-counter (OTC) derivatives exposures, in December 2008 the ECOFIN and Council invited the ESCB and CESR to consider explicitly addressing the risks of OTC derivatives. While the recommendations for CCPs were generally well designed to capture the specific features of the risks inherent in the clearing of OTC derivatives, the WG identified that some of the recommendations would benefit from further clarification. In particular, additional provisions were dedicated to credit derivatives for the handling of credit events and dispute resolution. In addition, the WG identified non-regulated entities that are clients of clearing members as potential source of risk for clearing activities and invited the relevant authorities to address this issue.

## **2 Functional versus institutional regulatory approach**

**A risk-based functional regulatory approach was initially envisaged.** The standards were meant to be risk-based and apply to all relevant functions in the securities and settlement activities regardless of the legal status of the entities offering these activities, i.e. whether CSDs, International CSDs (ICSDs) or custodian/agent banks.<sup>5</sup> This would have implied that agent banks operating systemically important securities clearing and settlement systems would have been subjected to the standards based on the scale of their activities and their impact on the stability of the financial market in the EU. However, some arguments were put forward that such an approach would lead to over-regulation of custodian/agent banks and overlapping with other supervisory regulation. In particular, it was assumed that the Capital Requirements Directive (CRD) and other relevant banking regulation would address the relevant post-trading risks assumed by custodian banks.

**A special challenge stemmed from the specific nature of ICSDs, combining CSD functions with a banking license.** First, the risk profile of a traditional CSD is very different from the risk profile of an SSS offering “banking services”. Second, while certain CSD functions are provided in a monopoly condition, settlement and additional banking services are, in principle, open to competition. Custodians voiced concern about the abuse of monopoly position by ICSDs. These issues have been later addressed in the EU regulation (909/2014) on CSDs (CSDR).

**Tailor-made recommendations were warranted to address the specificities of clearing and settlement arrangements in the EU.** After several alternations and extensive work for almost eight years, the recommendations were finally adopted in June 2009. While the initial objective of the WG was to develop risk-based binding standards addressed to clearing and settlement service providers, the final outcome resulted in non-binding recommendations addressed to regulators and overseers, for them to use as a regulatory and supervisory tool in efforts to achieve consistent

<sup>5</sup> Agent banks are financial entities that offer their customers both domestic and cross-border settlement services by internalised settlement on their own books.

implementation and a level playing field across the EU. One of the main reasons to change the legal nature of the regulation is that some members of CESR concluded that their authority lacked the legal basis to issue and enforce legally binding rules on CSDs and CCPs. Furthermore, custodian/agent banks were excluded from the scope of the recommendations, at the request of the ECOFIN Council.

**Strengthening safety and efficiency, as well as promoting competition.** The main objective of the recommendations was to enhance financial stability in the EU by ensuring efficient functioning and systemic risk reduction of clearing and settlement arrangements. Furthermore, the recommendations were aimed at fostering investors' protection by particularly reducing custody risk and enhancing transparency. While affecting market structure and competition fell outside the scope of the WG, it was anticipated that a single set of recommendations would create a level playing field, overcome other challenges, including regulatory arbitrage, lead to the enhanced efficiency of the post-trading landscape and, thereby, promote further competition and integration of post-trading arrangements in the EU.

**While the ESCB-CESR recommendations were non-binding and not fully implemented in all EU countries, they have undoubtedly fostered significant progress in developing harmonised EU regulation for CSDs and CCPs.** In particular, Regulation (EU) No 648/2012 on OTC derivatives, CCPs and trade repositories (known as the European Market Infrastructure Regulation or "EMIR") accommodated many of the ESCB-CESR reflections on addressing the risks associated with the derivatives markets and the activities of CCPs. Furthermore, the CSDR acknowledged the crucial function of the CSDs of ensuring the integrity of securities issuance and the importance of the SSSs for the sound functioning of the financial markets, the implementation of monetary policy, including the processing of repo and collateral arrangements, as well as addressing the liquidity risk deriving from the provision of banking services ancillary to settlement.

### 3 A diversified post-trading landscape in the EU

**Securities settlement arrangements in the EU were heterogeneous, including with regard to their legal status, ownership structure, functions and services.**

While securities settlement and ownership tracking are considered to be the core functions of a CSD, other related activities may also be offered by a CSD such as securities issuance, securities lending, collateral management, corporate services, data analytics, etc. Furthermore, some CSDs are wholly owned by exchanges, listed on the stock exchange and with a for-profit business model; while other CSDs are mutually owned by their participants and have a cost-recovery approach. Moreover, some CSDs, particularly ICSDs, are licensed as banks and allowed to provide cash credit and securities lending, by assuming the credit and financial risk exposures to their participants. This implies bundling the CSD's core functions with credit risk of commercial banks. However, in the majority of EU countries, the CSDs are prohibited from providing lending facilities and assuming credit and financial risks. While most of the European CSDs settle in domestic currency, the ICSDs settle in several currencies as their business typically serves the global financial markets.

**The central clearing activities were also not harmonised in the EU.** Some CCPs in the EU are licensed as banks with a limited purpose, while others are registered or recognised as clearing houses. As a bank, the CCP is mainly supervised by the banking supervisory authority and the CCP has to comply with a limited and specifically defined set of banking regulations. A clearing house is typically regulated and supervised by the securities regulators. However, since 2012, all EU CCPs are authorised in accordance with the EMIR regulation. Furthermore, the use of a CCP is mandatory for derivatives exchanges and often for equities and bonds, while it is typically optional for OTC markets. In some markets, trading, clearing and settlement are bundled into a single product, with participants being forced to use the entire value chain (vertical silos) through exclusive arrangements, and no competing provider can enter the market. Moreover, in some European markets, where CCPs are absent, guarantee arrangements exist to handle counterparty risk, and these vary from insurance-based schemes to more sophisticated arrangements that are comparable to a CCP's functions.

**The introduction of the euro has increased competition in post-trade arrangements in the EU.** In particular, trading in equities debt instruments, and derivatives has significantly increased across national borders, resulting in an increased need for cost-efficient, cross-border clearing and settlement arrangements. This has led to increased competition between CSDs and, more importantly, between ICSDs and custodian/agent banks. In particular, these banks rely on an omnibus account structure at the national CSD level, while substantial amounts of clearing and settlement are internalised within their books. The settlement activities of custodian banks grew substantially and, for instance, constituted the bulk of equity clearing and settlement in the EU. This situation presented a challenge to regulators and overseers to address the systemic risk of clearing and settlement, although custodian/agent banks activities were already subject to the banking supervisory regime. Furthermore, custodian/agent banks' representatives argued that the CSDs/ICSDs perform the function of market utilities, and their risks are different from that of custodians – which are commercial banks – serving investors with different levels of risk appetite.

## 4 Main issues addressed by the ESCB-CESR recommendations

**Some ESCB-CESR recommendations have been deepened and strengthened, aimed at accommodating the features of the EU post-trading arrangements.**

Compared to the original CPSS-IOSCO recommendations, this section illustrates only the main elements of the European adaptation of the recommendations, focusing on some important aspects.<sup>6</sup>

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<sup>6</sup> ESCB-CESR (2009), *Recommendations for Securities Settlement Systems and Recommendations for Central Counterparties in the European Union*, May, provides full coverage of the recommendations. Revision marks compare the CPSS-IOSCO (2001), *Recommendations for securities settlement systems*, November) with the ESCB-CESR (2004), *Recommendations for central counterparties*, November.

## 4.1 Recommendations for securities settlement systems

### 4.1.1 Recommendation 1: Legal framework

**The recommendation emphasised the importance of SSSs (and links between them) having a sound and transparent legal basis.** It advocated the importance of harmonising the EU rules governing the SSSs and minimising discrepancies stemming from different national rules and legal frameworks, in order to reduce systemic risk. This would also minimise the impacts of potential conflict of laws, thereby, increasing the level of legal certainty. While the recommendation recognised that some harmonisation has been achieved by the implementation of the Settlement Finality Directive, the financial collateral directive and MiFID, the recommendation suggested that further EU harmonisation might be needed in the future. Furthermore, the recommendation urged the operator of the SSS to increase transparency and provide participants with clear information on several important legal aspects, including the legal nature of the securities, the legal regime of the system, rules governing access, the rules on the transfer of securities (or interest in securities), the rules governing delivery versus payment (DvP) settlement, rules for possible unwinding of failed transactions.

### 4.1.2 Recommendation 6: Central securities depositories (CSDs)

**Due to the heterogeneity of the CSDs in the EU, as discussed above, this recommendation tried to address some of the challenges faced.** In particular, that securities holding within the CSD could be direct, indirect or a combination of both, depending on the specific legal environment and the relationship between the ultimate owner of the securities and the depository system in which they are held. Furthermore, the securities could be issued in a dematerialised or a physical form, including a global certificate. The recommendation advocated that these features be considered when defining the risk mitigation measures to ensure the integrity of the securities issue, the finality of the ownership transfer and the protection of end-investors. In this context, the recommendation required securities to be transferred via a legally recognised book-entry system, and the definitive record of the legal title should be unique to the CSD (or registrar), and reconciliation should take place daily to ensure that the amount settled by the investors in the CSD equals the amount issued in the CSD (or registrar). The CSDs should seek to mitigate the risks by utilising best accounting practices and end-to-end audit trails to safeguard the integrity of the securities issue and protect the interests of the holders. To ensure its safety, the CSD should be protected from any risk that derives from its affiliated but non-core activities such as securities lending, credit extension, etc. The recommendations urged the CSD to avoid credit and liquidity risks to the greatest possible extent. Furthermore, as the risks involved in offering CCP services are of a different nature to those of the core CSD activities, the recommendation required separation of those CCP services that entail credit risk into a distinct legal entity.

#### 4.1.3 Recommendation 10: Cash settlement assets

**The recommendation tried to strike a balance between the safety and practicality of cash settlement in a multicurrency settlement system.** As a default, settlement should take place in central bank money whenever it is practicable and feasible. However, for transactions denominated in foreign currency, the CSD should liaise with the relevant central bank to offer the facility in that currency. However, it may not always be practicable to use the central bank of issue as the single settlement agent, since the CSD's members, CCPs and linked CSDs may not have access to accounts with the central bank of issue. The recommendation urged the central banks to enhance the mechanisms for the provision of central bank money by, for example, facilitating access to central bank cash accounts. For settlement in commercial bank money, the recommendation advised only regulated financial institutions with robust legal, financial and technical capacity should be allowed to act as cash settlement agents. Furthermore, the CSD acting as cash settlement agent should put in place adequate risk measures, as described in the relevant recommendation, to protect its participants from potential losses and liquidity pressures.

#### 4.1.4 Recommendation 11: Operational risk

**The recommendation recognised the importance of mitigating the risks associated with outsourcing.** It said that, in principle, the CSDs should carry out their functions on their own behalf and only outsource their settlement operations or functions to third parties after having obtained prior approval from the relevant competent authorities, or at least having informed them that they are doing so. The outsourcing CSD should remain fully responsible and answerable to the relevant competent authorities. Furthermore, the CSD should ensure that the external providers meet the ESCB-CESR recommendations. A contractual relationship should be in place between the outsourcing CSD and the external provider, allowing the relevant competent authorities to have full access to the necessary information. Furthermore, the CSD should make it clear to its participants which operations and functionalities are outsourced. Moreover, the recommendation urged the CSD to evaluate its vulnerability arising from reliance on outside providers for utility and similar services, and it should seek to achieve diversity in key systems such as electricity and telecommunications to the extent possible or make back up arrangements.

#### 4.1.5 Recommendation 12: Protection of customers' securities

**The recommendation is applied to CSDs, ICSDs and registrars, as well as any other entities that hold securities, which are not subject to EU regulation.** The recommendation required entities holding securities in custody to be regulated and supervised. It also encouraged any entity holding securities in custody to employ best accounting practices and to segregate the customers' securities from its own securities in its books, so as to ensure that customer's securities are protected,

particularly against claims of the entity's creditors. Furthermore, reconciliation of the securities account should take place once a day. The recommendation went on to advocate that national law should ensure that customer securities are kept immune from any claims made by creditors of the entity holding the securities in custody or by entities upstream in the custodial chain. In addition, entities holding securities in custody must not use customer's securities for any purpose without prior consent of the clients. In no case should securities debit balances or securities creation be allowed by entities holding securities in custody.

#### 4.1.6 Recommendation 13: Governance

**The recommendation emphasised the identification and mitigation of conflicts of interest.** Some CSDs provide services to various groups of market participants, including to entities that belong to the same group. However, the interests of these market participants are not always compatible, which leads to the possibility of conflicts of interest arising among market participants, and between market participants and the operator of the system itself. The recommendation advocated the establishment of a predefined policy and procedures for identifying and managing these potential conflicts of interest. Furthermore, there should be transparency at the level of general policy and procedures and, where the operator of a system is part of a group, on the group structure. Finally, the limits of total credit exposure to participants and large individual credit exposures should be approved by the board of directors or at the appropriate decision-making level of the entity, in accordance with existing national regulation.

#### 4.1.7 Recommendation 19: Risks in cross-system links or interoperable systems

**The recommendation urged CSDs to evaluate and mitigate the potential sources of risks that can arise from linked CSDs, as well as from the link itself.** In particular, a CSD should evaluate the financial integrity and operational reliability of any other CSD with which it intends to establish a link. The resulting arrangements should be designed in a way that the risks are mitigated and the CSD remains able to observe the relevant ESCB-CESR recommendations. Furthermore, the recommendation prescribed that provisional transfers across a link should be prohibited, and CSDs should achieve DvP for links that process transactions against cash. Moreover, any credit extensions between CSDs should be fully secured and subject to limits. Finally, relayed links should be designed and operated in a way that minimises or contains settlement risks and does not impede the efficiency of cross-system settlement.

## 4.2 Recommendations for central counterparties

### 4.2.1 Recommendation 1: Legal risk

**The application of a multitude of laws to the operations of a CCP increases the legal complexity and could possibly affect systemic stability.** In the EU, the Settlement Finality Directive (98/26/EC) reduces these risks by providing clear rules on the law used to govern the system and the rights and obligations of a participant in an insolvency situation. In this context, the recommendation urged all CCPs to apply for designation under this Directive, and the relevant authorities should designate the systems that meet the Directive criteria. Furthermore, the recommendation advised the relevant authorities to support the harmonisation of rules so as to minimise any discrepancies stemming from different national rules and frameworks.

### 4.2.2 Recommendation 4: Margin requirements

**The recommendation further specified the need and criteria for margin requirement.** In particular that margin requirements should be imposed where feasible and should be sufficient to cover losses that result from at least 99% of the price movements over an appropriate time horizon. This time horizon should be appropriate to capture and identify the risk characteristics of the specific instrument in order to allow the CCP to estimate the magnitude of the price changes to be expected to occur in the interval between the last margin collection and the time the CCP estimates it will be able to liquidate the relevant positions.

### 4.2.3 Recommendation 9: Money settlements

**The recommendation prescribed that central bank money should be used when practicable and feasible.** When commercial bank money is used, it is important that settlement cash banks are properly regulated with the legal and technical capacity, and a CCP should define minimum criteria in terms of creditworthiness, operational reliability and access to liquidity that the settlement banks chosen by their clearing members or used by itself should meet. It should also be able to monitor its exposure to settlement banks and evaluate its risks by taking into consideration their concentration of payment flows with regard to their financial conditions. A CCP should also assess its potential losses and liquidity pressures in the event that the settlement bank with the largest shares of settlements were to fail.

#### 4.2.4 Recommendation 11: Risks in links between CCPs

**The recommendation imposed stronger requirements for establishing cross-border and domestic links.** In particular, a CCP should design and operate links so that they effectively reduce the associated risks. To that purpose, the CCP should be able to identify the potential risks before the establishment of a link, including evaluating the legal, operational, credit, liquidity and settlement risks that may stem from the design and operation of the link itself. Furthermore, in order to identify other risks, a CCP should also seek to obtain the relevant information on the level of observance of the linked CCP with the ESCB-CESR recommendations for CCPs, or of the CPSS-IOSCO recommendations for CCPs (for non-EU CCPs). When there are differences in the level of requirements with regards to recommendations, or when weaknesses are evidenced, the CCP should take steps to mitigate these potential risks that may arise before entering into the link relationship.

# Chapter 4 – The origin and impact of the 2014 CSD Regulation: a market perspective

Prepared by Paul Symons and Ilse Peeters<sup>1</sup>

The 2014 Central Securities Depositories Regulation (the CSDR or the Regulation on improving securities settlement in the European Union and on central securities depositories, to give it its full title) was a long time in gestation. It originated from the desire of the EU authorities in the very early 2000s, at the time of the Giovannini reports, to reduce the cost of clearing and settlement in the EU, to harmonise post trade practices and to improve competition and increase consolidation across the industry. But the catalyst for its introduction, and its renewed focus on the post-trade sector, was the financial crisis of 2008-09 and the G20 agenda which called for all financial actors to be regulated consistently. There was a recognition by the EU authorities that, in the absence of consistent obligations and common prudential standards for central securities depositories (CSDs), any divergent measures taken at national level could have a direct and negative impact on the safety, efficiency and competition in the settlement industry in the EU.

This chapter examines the context in which the CSD Regulation came into force, the complexities faced in drafting a final text and the benefits (and challenges) of the regulation for the industry and the CSDs themselves. It closes with a look at the future potential evolution of the Regulation.

## 1 Introduction and Context

Until 23 July 2014, when the CSDR became law, EU CSDs had been regulated domestically, and that domestic regulation was usually shaped by the national securities laws of each Member State. There had however, long been pressure from investors, intermediaries and the public sector to greatly reduce the costs of cross-border settlement within the EU and to drive market harmonisation; a single financial market in the EU (mostly) using a single currency demanded greater integration, more competition and lower costs.

The European Commission had led and driven the market harmonisation agenda, in particular through the Clearing and Settlement Advisory Monitoring Expert (CESAME) group, and in 2006 and 2007, a number of important initiatives evolved from this leadership – designed to achieve these aims. In particular, the EU securities exchanges, CSDs and central counterparties (CCPs) voluntarily signed a Code of Conduct in 2006 under the guidance of the European Commission and the

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European Central Bank (ECB). This Code was designed to improve transparency (of services and costs) and to increase competition in cross-border clearing and settlement. This initiative was followed by detailed access and interoperability guidelines in 2007, which aimed to provide a public rulebook of how CSDs, CCPs and securities exchanges could access other securities infrastructures in the EU openly and fairly. But it soon became clear that voluntary reform was unlikely to make a pan-European and lasting change to the structure of the post-trade industry. Many of the principles contained in these industry owned Guidelines and Codes later found their way into the Markets in Financial Instruments Regulation (MiFIR), for the trading venues; the European Market Infrastructure Regulation (EMIR), for the CCPs; and into the CSDR itself. Simultaneously with the launch of this Code of Conduct, the ECB launched the concept of a pan-European central bank money settlement system – Target 2-Securities (T2S). T2S was expected to greatly increase the volume and value of cross-border settlement in the EU, but at a time when such settlement remained complex in the Union, due to different national market practices and persisting barriers to access, it was clear that much more consistent regulation and harmonisation of post-trade processes – such as CSDR offered – would be required for T2S to be successful.

The global financial crisis of 2007-09 led to an inevitable tightening of financial services regulation across the globe. Settlement systems had demonstrated great stability during this period and had successfully processed record settlement volumes securely and efficiently. In April 2012, the Committee on Payments and Settlement Systems (CPSS) and the International Organization of Securities Commissions (IOSCO) adopted global standards for financial market infrastructures (including CSDs), following a request from the Financial Stability Board in 2010. In 2012, the Commission issued a detailed proposal to ensure that CSDs would be regulated consistently across the EU, following industry-wide consultation, which in turn would lead (in 2014) to the CSDR itself – the text of which encouraged the European Securities and Markets Authority (ESMA) and the European System of Central Banks (ESCB) to ensure consistency between it and these new global market standards.

It is however, important to remember that the CSDR was just one component in the EU authorities' plans to create common rules for the securities industry. They also acted at this time to remove barriers to cross-border inefficiencies for investors, institutions and issuers in other areas such as, cross-border collateral usage, transparency of securities financing transactions, clearing of (over-the-counter) OTC derivatives, CCPs and trade repositories.

## 2 The challenges of drafting the CSDR

The drafting and finalisation of the CSDR was a complex process. While the CSDR aimed at ensuring the consistency of prudential requirements for EU CSDs, it did not attempt to harmonise CSDs themselves or their respective services, thereby ensuring that all existing CSDs could fit within the scope of the CSDR itself. In 2014 (and still today) there were over 30 CSDs in Europe (largely providing services for issuers and holders of domestic securities in their domestic currency in central bank money) and two international central securities depositories (ICSDs) – Euroclear Bank in Brussels, and Clearstream Banking in Luxembourg – that provided services primarily for international investors and issuers of Eurobonds and international debt in multiple currencies). These two ICSDs also held banking licenses and, although they did not offer maturity transformation, they did manage limited credit and liquidity risks. Providing a common legal definition to cover these two broad types of CSD, and to satisfactorily cover the wide variety of structures and services offered by domestic CSDs, and also to ensure that other service providers in the industry were not unwittingly caught up in the regulation, proved very challenging.

In addition, as the discussions with the European authorities continued during 2012-14, it became clear that a very large part of the final CSDR would have to deal with the prudential requirements which would apply to a CSD which also held a banking licence. At one stage it even appeared as if the two ICSDs themselves would have to split their operations into a legally and structurally separated bank and CSD. The financial crisis had demonstrated that no bank was too big to fail and that the systemically important functions of a CSD should be ring-fenced from any form of banking risk. Complex and lengthy discussions between the industry and the European Commission, Parliament and Council of Ministers resulted in a compromise, in which a CSD could indeed operate a banking licence, but under very strict and detailed limitations to its banking services, complemented by specific rules for the management of related credit and liquidity risks, over and above existing banking legislation.

To meet the objective of increasing provision of safe and efficient cross-border services, CSDR also incorporated rules on the establishment of CSD links and on cross-border provision of CSD services through the creation of a new CSD passport.

## 3 The challenges and benefits of the CSDR for the industry

The CSDR aimed to reduce risks in the securities markets, lower costs and improve efficiency. It also aimed to broaden the choice of issuers of securities, among others, allowing them to issue into any CSD of their choosing in the EU. These aims were clear and widely supported by the industry; but the breadth of the ambition of the authorities meant that many of the provisions of the CSDR actually also applied directly to a CSD's participants. CSDR set out a number of uniform requirements to be imposed on market participants regarding certain aspects of the settlement cycle and settlement discipline, as well as providing a set of common requirements for CSDs operating securities settlement systems.

The first of these market requirements was to move the settlement cycle from T+3 to T+2, with the aim of further reducing market risk in case of counterparty failure between trade and settlement (often referred to as “settlement risk”). This was very broadly welcomed by the financial industry, which made the move successfully and simultaneously across the EU in October 2014, in advance of the deadlines in CSDR, with no material increase in the number of transactions which failed to settle.

The second requirement was far more controversial. The CSDR aimed to reduce or eradicate settlement fails across the EU by requiring failing participants to be subject to a compulsory enforcement of the original agreement. The Regulation provided for uniform and complex rules concerning penalties to be levied on those who had failed to deliver either cash or securities on the due date, and for those penalties to be passed-on to those who had suffered the failure. In addition, for transactions which failed for a defined period, mandatory buy-ins for all transferable securities were introduced. The requirements in the Regulation still concern parts of the market – in particular, the potential impacts on repos and other securities financing transactions (which are within the scope of the regulation) remain a significant concern for some parts of the industry. This regime has still not been fully implemented in the EU and (at the time of writing) is now likely to be delivered only in February 2022.

Finally, the CSDR also introduced new requirements on firms (“settlement internalisers”) to report to their competent authority, any transactions on behalf of clients which were settled on the firm’s account, and not through the books of a CSD. This was designed to allow the authorities to assess whether business was migrating from CSDs onto the books of their participants which were subject to different regulatory requirements.

## 4 Challenges and benefits of CSDR for CSDs

The bulk of the provisions of the CSDR however, recognised and focused on the stability and safety of the CSDs themselves, as they are of systemic importance for the functioning of securities markets. CSDs play a vital role in the securities holding systems through which their participants report the securities holdings of investors. The securities settlement systems operated by CSDs also (in most Member States, at least) serve as a tool to control the integrity of an issue, and therefore play an important role in maintaining investor confidence. Moreover, securities settlement systems operated by CSDs are closely involved in securing collateral for monetary policy operations, as well as in securing collateral between credit institutions.

The CSDR therefore, provided a highly comprehensive regulatory framework to cover all aspects of a CSD’s activities (including provisions related to authorisation, governance, passporting, third-country relations, record keeping, outsourcing, transparency, default rules, risk management, investment policy, capital adequacy, open access and cross border links, etc). In addition, the CSDR set down the detailed authorisation of – and limitations on – the banking services which some CSDs offered to their clients.

There is no doubt that this Regulation, while complex to draft and to implement has had significant benefits for CSDs themselves and for the European securities industry more widely. The consistency of regulation which now applies across all 27 Member States has been instrumental in underpinning the success of T2S in providing a common low-cost settlement system for the euro area, and indeed other currencies. The requirements for CSDs to focus on the development of effective risk management practices and the tightening of the rules relating to the protection of client securities has improved stability and mitigated risks even further. Also, the banking services of the two ICSDs have been subject to significant improvements in liquidity and credit risk management which, whilst expensive and time-consuming to implement, have greatly bolstered the resilience of their operations.

However, it is also true that the diversity of CSDs in the EU, and the fact that securities laws in the Union remain domestic, has meant that to date CSDR has not led to much more CSD integration. Nor has there been significantly increased cross-border settlement volumes (in T2S or across other links). As the CSDR is due to be revised by the European Commission soon, some major flaws may need to be addressed quickly.

A first candidate for revision is the CSDR passporting regime, the implementation of which has proved unnecessarily complex (since it linked the host country to the governing law of the securities issue). The definition of what constitutes cross-border provision of services by CSDs could be improved. CSDR is probably one of the only pieces of financial services legislation which requires an approval of the passporting request by the host authority – generally, a notification is deemed sufficient.

In addition, in order to increase competition, many CSDs wish to offer new issue distribution and settlement services in other currencies than that issued by their domestic central bank. To do so either requires CSDs to gain direct access to the central bank issuing the relevant currency (which can be complex to achieve cross-border). Alternatively, they would have to develop their own commercial bank money settlement services, but the CSDR has raised the bar so high here that domestic CSDs cannot easily develop such services economically.

Finally, the implementation of CSDR has demonstrated inconsistent interpretations of the rules and differing approaches by regulators to the authorisation process. While some CSDs were authorised relatively quickly, others found that the authorisation process lasted two or three years, and some CSDs still have not received their authorisation, at the time of writing.

## 5 Conclusion and the future

The CSDR was extremely important legislation, which focused on the reduction of risk and the opening-up of competition in the post-trade industry in the EU. Although its focus was directed at only around 30 CSDs, its effects were felt across the industry as it reformed market practices.

It is probably too soon to assess its affects adequately, and a targeted review of some of its provisions is needed to ensure its objectives are met. Fine-tuning of the text in areas such as settlement discipline and passporting will greatly aid its future effectiveness. The industry and the authorities must also ensure that the Regulation is future-proofed to deal with the challenges of increasing digitalisation, crypto-assets and distributed ledger technology; and also that CSDs can continue to develop new services for the benefits of their clients in an economic way and using the same safety standards. Yet, the full benefits of integrated CSD services will only be realised once the thornier harmonisation challenges are tackled – particularly in the area of withholding tax procedures and securities law. It is promising that the Commission's capital markets union (CMU) action plan includes some of these elements as priorities for the years to come.

# Chapter 5 – The ECB/Eurosystem role in the authorisation and supervision of CSDs

Prepared by Adrian Popescu<sup>1</sup>

## 1 Background information

In April 2012, the Committee on Payments and Settlement Systems (CPSS) and the International Organization of Securities Commissions (IOSCO) adopted global standards for post-trading infrastructures, i.e. Principles for Financial Market Infrastructures (PFMIs). After the publication of the PFMIs, the European Commission and the European Supervisory Authorities, in close cooperation with the members of the European System of Central Banks (ESCB), engaged to ensure international convergence between the requirements to which securities market infrastructures in the Union are subject and global standards. This led to the Regulation on improving securities settlement in the European Union and on central securities depositories (the CSD Regulation or CSDR) which was published in the Official Journal of the European Union on 28 August 2014 and entered into force on 17 September 2014; that, among other things, transposes the standards developed by CPSS-IOSCO.

As stipulated in its first article, the regulation lays down uniform requirements for the settlement of financial instruments in the Union and rules on the organisation and conduct of CSDs to promote safe, efficient and smooth settlement.

The scope of CSDR is more far-reaching than the PFMIs. In particular, it includes requirements on cooperation between authorities across the Union, harmonises settlement practices and fosters settlement discipline, removes obstacles for issuers to directly access other markets, it facilitates cross-border access between CSDs and between CSDs and other types of market infrastructures (CCPs, trading venues, etc.) and it eliminates barriers preventing CSDs from providing services in other Member States.

Before the entry into force of the CSDR, the regulatory framework in the sphere of post-trade infrastructures in the Union was represented by a set of non-binding recommendations, established at European level in 2009 by the ESCB and the Committee of European Securities Regulators (CESR) – the ESCB-CESR recommendations. With the application of the CSDR, a major shift in the paradigm has taken place. “Soft law”, based on non-binding recommendations and moral suasion, was replaced by “hard law” which entailed stricter and legally enforceable requirements, and remedial actions and administrative sanctions (including a penalty

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regime) in case of infringements. This shift also brought with it, more precision in and granularity of the requirements applicable to CSDs. Finally, it addressed a number of peculiar EU issues. The prudential requirements applicable to CSDs providing banking type ancillary services or those on cooperation between EU authorities are good examples in this regard. These requirements facilitate consistency in the interpretation and implementation of the regulatory provisions, ensuring a level playing field and contributing to making the capital markets union a reality.

The CSDR also represents a major step forward in fostering cooperation among authorities with an interest in the safety and efficiency of CSDs, in particular at cross border level.

First, in the authorisation and supervision process, competent authorities designated by a Member State need to consult the central banks in their various capacities: as issuer of the most relevant settlement currencies for their CSDs, as a settlement agent for the cash leg of securities transactions and as the overseer of the securities settlement system operated by their local CSD(s). Second, as concerns provision of services in other Member States, the competent authorities in the involved Member States should closely cooperate. In particular, if the activities of one CSD become of substantial importance in the other Member State, the competent and the relevant authorities in the two Member States need to establish cooperative supervisory arrangements. Third, in case a CSD provides banking type ancillary services, the competent authority of the CSD cooperates with the authorities empowered by national law to supervise credit institutions.

The cooperation requirements under the CSDR entail, apart from the exchange of information between authorities for the purpose of conducting their duties under the Regulation, also the immediate notification in case of an emergency situation impacting liquidity, the stability of a currency, the integrity of monetary policy or, more generally, financial stability.

In this chapter, central banks' interest in the safety and efficiency of CSDs is first recalled and then the role of the Eurosystem in the preparation of the regulatory framework as well as in the authorisation and supervision of CSDs is explained.

## 2 Central banks' interest in safety and efficiency of CSDs

A central bank's interest in the safety and efficiency of CSDs stems from its core competence on monetary policy and financial stability as well as its core competence on the smooth functioning of payment systems. The CSDR acknowledges central banks' interest in the safety and efficiency of CSDs, and defines their involvement in the regulatory process, authorisation and regular supervision of CSDs. Recital 8 of the CSDR explains that ESCB members should be closely involved by being consulted in the setting of regulatory and implementing technical standards, as well as of guidelines and recommendations. Furthermore, the Regulation is without prejudice to the European Central Bank (ECB) and the national central banks' responsibilities of ensuring that clearing and payment systems within the Union and

other countries are efficient and sound, and should not prevent the members of the ESCB from accessing the information relevant for the performance of their duties, including the oversight of CSDs and other financial market infrastructures.

### 3 Involvement of the Eurosystem in the preparation of the regulatory framework

The overall regulatory framework currently applicable to CSDs constitutes a comprehensive package in the preparation of which the Eurosystem has been involved.

The core component of the package is the CSD Regulation itself – CSDR (Level 1) which includes key provisions aimed at harmonising certain aspects of the settlement cycle and settlement discipline and providing a set of common requirements for CSDs operating securities settlement systems in the EU. In response to a request from the Council of the European Union and the European Parliament, on 1 August 2012 the ECB issued its opinion on the proposal for a regulation on improving securities settlement in the European Union and on CSDs (i.e. the CSDR).

Furthermore, the Eurosystem contributed to the preparation of a comprehensive set of regulatory technical standards (RTS) and implementing technical standards (ITS) (Level 2 measures), including on: 1) requirements for recognition and supervision of CSDs, the organisational and prudential requirements for CSDs, and access requirements; 2) internalised settlement reporting requirements; and 3) settlement discipline measures. The Eurosystem also participated in the work on guidelines, the aim of which is to achieve supervisory convergence and a level playing field with regard to the implementation of the CSDR. The most important, from the Eurosystem perspective, are the guidelines on default rules and procedures, the process for the collection of indicators to determine the most relevant currencies in which settlement takes place, and the cooperation between authorities.

### 4 Involvement of the Eurosystem in the authorisation and supervision of CSDs

Under the CSDR, all Member States need to designate a competent authority which is assigned with supervisory and investigatory powers. Central banks play this role in those Member States where traditionally they have been vested with regulatory and supervisory responsibilities for CSDs. Furthermore, the CSDR requires the involvement of central banks as a relevant authority in the authorisation and regular supervision process of CSDs in the capacity of: 1) central bank of issue for the most relevant currencies in which a CSD conducts its settlement activity, 2) central bank in whose books the cash leg of the securities transactions is settled, and 3) oversight authority for the securities settlement systems operated by the CSD (a competence foreseen under the national law).

The Eurosystem qualifies as a relevant authority for all CSDs in the euro area as the central bank of issue for euro – their main settlement currency. Furthermore, it qualifies as a relevant authority for a limited number of non-euro area EU CSDs, either as the central bank in whose books the euro cash leg of the securities transactions is settled, or on the grounds that the euro is one of the most relevant currencies in which the respective CSD settles. As a relevant authority, the Eurosystem may provide the national competent authorities with its view on the features and the functioning of the securities settlement system of the local CSD. For CSDs which provide banking services, the Eurosystem should provide its reasoned opinion in relation to those services.

After the CSDR entered into force in 2014, the next main milestone was the authorisation of CSDs under the new regulatory regime. All CSDs had to submit their application by the end of September 2017, which represented the formal launch of the authorisation process.

Between 2017 and 2020 the Eurosystem participated in the authorisation of all euro area CSDs and three non-euro area CSDs for which the Eurosystem qualified as a central bank of issue for euro, or as a central bank in whose books settlement takes place. In addition, although CSDs operated by members of the ESCB or national public bodies are not subject to a formal authorisation process, the Eurosystem has contributed to their assessment against a set of applicable CSDR requirements in view of their use for Eurosystem credit operations. Overall, the Eurosystem provided its view, reasoned opinion or assessment for 32 dossiers, for core and ancillary non-banking services and for banking type ancillary services. The Eurosystem has successfully accomplished its role in spite of the large number of dossiers, the volume of background documents in each of these dossiers (system rules, legal arrangements, risk frameworks, governance arrangements, operational documentation, etc.) and the demanding regulatory deadlines for relevant authorities to provide their view or reasoned opinions.<sup>2</sup>

Subsequent to their authorisation, CSDs are subject to an annual review and evaluation process, in which the Eurosystem participates at the request of the competent authorities. In 2019-20 the Eurosystem contributed to several review and evaluation processes in which it expressed its view on the implementation of findings issued during the authorisation process and on the functioning of the securities settlement systems operated by the CSDs.

Overall, acting as the only authority which takes part in the authorisation and supervisory process of all CSDs in the euro area (and most of the CSDs in the EU), the Eurosystem has a unique position among the CSDs' competent and relevant authorities. As a matter of consequence, the Eurosystem facilitates consistent application of the CSDR requirements and by this contributes to supervisory convergence. Most importantly playing the role of a relevant authority helps the Eurosystem fulfil central banks' statutory responsibilities.

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<sup>2</sup> Three months for the authorisation of core and ancillary non-banking services and one month for banking services.

# Chapter 6 – Oversight of T2S and the T2S Cooperative Arrangement

Prepared by Alberto Romera and Beata Wróbel<sup>1</sup>

## 1 The systemic relevance of T2S and the oversight competences of the Eurosystem

TARGET2-Securities (T2S) has been one of the most challenging and far-reaching market infrastructure projects of the Eurosystem thus far, not only due to its complex technical design, but also as a result of the ambitious harmonisation agenda that it pushed into all the participating markets. The task of conducting the oversight of T2S comes with no fewer challenges, considering its systemic importance and the number of authorities with an interest in its smooth functioning.

Within T2S, central securities depositories (CSDs) and central banks operate the accounts of their securities settlement systems (SSSs) and of their real-time gross settlement (RTGS) payment systems, respectively; enabling a fully integrated model for securities settlement on a delivery versus payment (DvP) basis in central bank money. T2S has systemic relevance for the safety and efficiency of financial markets, given that:

- securities transactions taking place in the SSSs operated by participating CSDs, including Eurosystem credit operations achieve settlement finality (SF3) in T2S;<sup>2</sup>
- the T2S settlement services underpin other services provided by CSDs (e.g. the processing of corporate actions, issuance) and by other types of FMIs, including central counterparties (CCPs), which are directly or indirectly dependant on the services provided by T2S;
- T2S enables settlement of domestic and cross-border securities transactions against central bank money in euro and other currencies (through a legal arrangement with the respective central banks of issue which includes technical outsourcing of cash accounts).

The main objective of the oversight of T2S is to ensure the safety and efficiency of the T2S services on a continuous basis, but also to accommodate the needs of the

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<sup>2</sup> Article 21(4) of the T2S Framework Agreement, establishes that "[t]he Contracting CSD shall make all necessary arrangements with regard to its operational processes and contractual terms, in particular its rules, (...), (b) to ensure the unconditionality, irrevocability and enforceability of the settlement processed on the T2S Platform".

FMLs using T2S services so as to ensure their compliance with the relevant applicable regulations and oversight standards.

Taking into account the systemic relevance of T2S and based on the provisions of the Treaty on the Functioning of the European Union and the Protocol on the Statute of the European System of Central Banks and of the European Central Bank, the Eurosystem has the competence to oversee T2S. The proper functioning of T2S is essential to ensure that clearing and payment systems are efficient and sound, and ultimately to guarantee the transmission of monetary policy. The soundness and resilience of T2S services needs to be ensured at all times in order to prevent any disruptions which may have the potential to endanger the stability of the financial system as a whole and could ultimately challenge the confidence in the euro. Additionally, as the provision of central bank money is a core task of the Eurosystem, T2S is a public service in nature.

## 2 Cooperation among authorities and the pre-assessment of T2S

The Eurosystem's oversight competence over T2S is without prejudice to the responsibilities of the authorities in charge of the oversight or supervision of participating CSDs or the SSSs they operate, as well as those authorities in charge of the oversight or supervision of any payment system connected to T2S. At the same time, from the design phase of the project it was already evident that a poor design or operation of T2S might contribute to, or exacerbate, systemic crises and that, consequently, the conduct of the oversight of T2S must ensure effective cooperation with all other authorities that have an interest in the safety and efficiency of T2S, resulting from their respective regulatory, supervisory and oversight powers. In that regard, the Eurosystem oversees T2S to ensure the efficiency and soundness of T2S services. Overseers of payment and securities settlement systems that use T2S services, monitor the safety and efficiency of those systems in order to contribute to overall financial stability. National competent authorities supervising the CSDs to which T2S provides core settlement services, must ensure a sound organisational, prudential and conduct-of-business framework of the CSDs under their supervision is in place, in order to achieve the proper functioning of national financial markets. Central banks of non-euro settlement currencies aim at ensuring that T2S settlement services with respect to their currency are performed in an adequate framework. All these authorities share a common interest in the prudent design, operation and management of T2S services given their objectives.<sup>3</sup>

In 2010, the Eurosystem began cooperating closely with 40 national authorities and with the European Securities and Markets Authority (ESMA) in the conduct of a pre-

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<sup>3</sup> The need for cooperation would later be reinforced by: CPSS-IOSCO (2012), Principles for financial market infrastructures (PFMIs), April ; a report which considered that it falls under the responsibility of central banks, market regulators and other relevant authorities to "cooperate with each other both domestically and internationally to strengthen official oversight and supervision and to minimise the potential duplication of effort and reduce the burden on the FMLs and the relevant authorities".

assessment<sup>4</sup> of T2S's (or assessment of the T2S design's) observance of the ESCB-CESR recommendations before starting operations in 2015. As a result of this cooperation, and based on the contributions of competent authorities, a questionnaire was drafted for the T2S Programme Board to provide information on the so-called "T2S critical elements" (i.e. legal set up, governance, efficiency, transparency, operational risk and straight-through processing mechanisms (STP)), but also concerning broader issues (e.g. envisaged support of DvP, timing of finality, credit and liquidity risk management) which would later support the competent authorities in the performance of their respective tasks. The progress of the pre-assessment turned out to be highly dependent on the progress made regarding the legal framework of T2S services and for this reason it could only be finalised in March 2015.<sup>5</sup> Overall, the authorities concluded that the T2S design did not reveal any material gaps, although in a few areas relating to legal risk, timing of finality, operational risk, access, links and risk management considerations, some enhancements were considered necessary and recommendations were issued.

Once T2S was in operation, the T2S Cooperative Arrangement was formally established by the Eurosystem in January 2016, with the objective of fostering efficient and effective communication by sharing information among authorities in relation to T2S, as well as providing mutual assistance among participating authorities in carrying out individual responsibilities in pursuit of their respective mandates under normal circumstances or in the event of a crisis. Participating authorities of the T2S Cooperative Arrangement comprise: the Eurosystem (in which the European Central Bank (ECB) leads and coordinates the oversight activities related to T2S), overseers of CSDs participating in T2S, central banks of issue for currencies settled in T2S, competent authorities for the supervision of those CSDs which have signed the T2S Framework Agreement, and ESMA (in its role as coordinator of competent authorities for the supervision of CSDs).

### 3 The applicability of the PFMI as oversight standards for T2S in operation

In June 2013, the Governing Council of the ECB adopted the CPMI-IOSCO PFMI as the standards for Eurosystem oversight of all types of FMIs in the euro area under Eurosystem responsibility. Although T2S does not fall under the definition of one of the FMIs listed in the PFMI report (i.e. a payment system, CSD, SSS, CCP or Trade Repository), the Eurosystem decided to apply the PFMI to T2S as these principles refer to functions technically performed by T2S, i.e. settlement and recording of securities transactions. Taking into account the specific nature and objectives of T2S

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<sup>4</sup> At the time, it was concluded that a formal assessment of T2S could only be conducted upon the finalisation of the development phase of the project, and accordingly, the "pre-assessment of T2S" would not constitute a formal oversight or supervisory assessment, for which no assessment methodology had to be developed.

<sup>5</sup> Even though the PFMI were adopted in 2012, the authorities decided to complete the pre-assessment of T2S's observance of the applicable ESCB/CESR recommendations to ensure consistency and timely completion before the T2S go-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 have been added for the assessment of the T2S design.

and the functions it performs, a tailor-made application of the PFMI was deemed the most adequate approach. Accordingly, the principles and related key considerations relevant for an infrastructure such as T2S as set out in the PFMI were identified. In this regard, not only all relevant PFMI requirements applicable to CSDs and the SSSs they operate were deemed applicable to T2S, but also requirements related to other functions performed by T2S such as cash settlement aspects and specific functions performed by payment systems. This approach furthermore takes into account that T2S is expected both: i) to comply with applicable principles of the PFMI of a general nature which underpins the provision of T2S services, and ii) to facilitate the compliance with the PFMI of the financial market infrastructures using T2S services.

Reflecting this approach for the application of the PFMI to T2S, in February 2018, the ECB Governing Council approved the T2S oversight framework – which develops on the general aspects specified in the Eurosystem oversight policy framework with a view to ensuring the clarity, transparency, consistency and accountability of the Eurosystem’s oversight activities in the context of T2S. In particular, this document describes the organisational arrangements for the oversight of T2S and for the cooperation with other entities (e.g. the T2S Cooperative Arrangement), provides practical guidance for the conduct of regular and ad hoc oversight activities –including high-level information requirements –and specifies the oversight assessment reports and other documents to be produced on a regular basis.

The oversight activities relate to the monitoring and evaluation of risks related to T2S, in order to ensure that they are being adequately controlled in an efficient manner. To this end, the T2S oversight function conducts assessments and other types of analysis based on the available documentation and the information obtained through exchanges with the T2S operation function. Depending on the regularity with which T2S oversight activities are conducted, they can be categorised into either regular activities (such as comprehensive assessments or assessments of operational performance) or ad hoc oversight activities (such as the assessment of changes).

The first comprehensive assessment of T2S in operation was launched in February 2018 and was based on the analysis of the self-assessment exercise completed by the T2S operation function as well as the supporting documentation provided on T2S. The assessment report was drafted by the Eurosystem T2S oversight function and consulted with and benefited from the comments of the T2S Cooperative Arrangement. Following the approval of the ECB decision-making bodies, in October 2019, the outcome of the report was submitted to the T2S operation function. While the assessment concluded that T2S is largely compliant with the PFMI and the T2S services are provided in a safe and efficient manner, it revealed a number of findings to be addressed by the T2S operation function in a timely manner which is subject to monitoring by the T2S oversight function.

# Chapter 7 – The European landscape in the field of securities settlement

Prepared by Pierre Beck<sup>1</sup>

The origin of special arrangements used for the settlement of securities goes back to the second half of the 19th century, when the need to hold securities centrally emerged to ensure safekeeping, to check authenticity and to control fraud. This gave rise to a new type of financial institution: the central securities depository<sup>2</sup>. In larger countries, these were set up regionally; in others, they took the form of national infrastructure.

## 1 A segmented landscape

In the second half of the 20th century, the landscape of the post-trade infrastructure used for issuing, keeping and settling of securities, while benefiting more and more from the development of information technology, remained largely segmented in many respects. Over the years, most of the European countries had set up their own central system, which formed part of a coherent domestic financial infrastructure like SICOVAM in France, MonteTitoli in Italy or Deutscher Kassenverein in Germany. Furthermore, most of these national CSDs were linked to stock exchanges and were operated by private actors, some by the national central banks. There were wide variations in their structure, service offering and quality. Some were focused on equity markets, whereas others only settled fixed income securities, and among these some specialised in public issuers.

The widespread use of central bank money as a settlement asset in securities transactions, means there is also a close link with the respective national central bank.

As regards regulation, it was usually the responsibility of securities regulators to grant the CSDs their licences and supervise their activity. However, their supervision generally laid more emphasis on market surveillance aspects, than on risks related to custody, clearing and settlement, with only a few central banks having national regulatory powers in that field. Not only did the institutional environment differ, but also the legal and regulatory frameworks in which CSDs operated were national and so quite distinct. Even the legal frameworks for classic securities transactions, like repo or pledge, differed between countries.

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<sup>1</sup> Pierre Beck was a Member of the Executive Board of the Banque centrale du Luxembourg until 31 May 2021.

<sup>2</sup> In this chapter, the concepts of “central securities depositories” (CSDs) and “securities settlement systems” (SSSs), although highlighting different functions, refer to the same type of institution and are used indiscriminately.

## 2 Cross-border settlement

With the increasing volume of capital in dollars being issued and held in countries other than the United States, there was a need to enable international investors to settle such international issues outside that country. This was the origin of two international institutions: Euroclear – set up in the late 1960s by Morgan Guaranty Bank in Brussels – and Cedel – created in Luxembourg by a group of 71 banks from 11 (mostly European countries) a few years later. In the following years, these two International CSDs (ICSDs) opened their systems for securities denominated in other currencies and they created links to national CSDs (NCSDs), through which international investors or their agents could clear and settle securities across the different national markets. As a result, they added an “investor SSS” business to their initial activity as an “issuer SSS”, which enabled their customers to clear and settle securities across multiple jurisdictions.

## 3 Central banks’ interest in the proper functioning of securities settlement systems

The specific attention devoted by the central banks of advanced economies to the soundness of payment systems, increased in the last decade of the twentieth century, after a number of incidents. It naturally extended afterwards to the settlement of securities. The two main reasons for this evolution were: (i) the fact that the settlement of the cash legs had a direct connection to (national) payment systems (in some instances, it was referred to as “embedded payment systems”); and (ii) the assessment of financial and operational risks to which users of the post-trade infrastructures are exposed, and hence, the risks that these infrastructures can pose to financial stability at large are, to a certain extent, similar to the ones which can be found in payment systems.

In 1992, the Committee on Payment and Settlement Systems of the central banks of the Group of Ten countries (CPSS) produced a report<sup>3</sup> on the various types and sources of risk in securities clearance and settlement. It analysed in particular the concept and implications of delivery versus payment (DvP). Building on this conceptual framework, the report reviewed the design and operation of securities settlement systems in use or under development at that time. It identified common approaches to DvP and evaluated the implications of these approaches for the objectives of central bank policy aiming at the stability of financial markets and the containment of systemic risk. This report became an important milestone for the oversight activity of the central bank community at large in the field of securities settlement systems.

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<sup>3</sup> [Bank for International Settlements \(BIS\)/CPSS \(1992\), \*Delivery versus payment in securities settlement systems\*, September.](#)

## 4 EMU provides the first boost to the harmonisation of securities settlement

With the Maastricht Treaty, the European Monetary Institute/European Central Bank (EMI/ECB) received a clear mandate to ensure the “smooth functioning of payment systems”, which comprised not only the operating by the national central banks of their in-house systems but also the control of all existing payment systems including those operated by private actors. A second important workstream, which concerned payment and securities systems alike, was the setting up of an operational framework to carry out the common monetary policy operations. A substantial part of this framework dealt with the management of the collateral the Eurosystem required in its credit operations. In the absence of a single post-trade infrastructure and a harmonised European legal framework, the EMI/ECB together with the national central banks of the euro area had indeed to make sure that any eurozone counterparty could mobilise, in a legally sound way, eligible collateral held anywhere in the euro area. Furthermore, the national central banks involved in these transactions also had to ensure that they themselves did not incur uncontrolled risks and that risks could not spill over into payment systems.

For that purpose, in January 1998 the EMI published **Standards for the use of SSSs in Eurosystem credit operations**.<sup>4</sup> In the absence of any other international standards or regulatory requirements for SSSs at that time, this user assessment framework intended not only to address the concerns of the Eurosystem in the context of the settlement of its credit and related operations, but also to propose broader objectives for financial safety and market integration. The report elaborated nine standards, which EU SSSs had to meet for them to be used for the settlement of the Eurosystem’s credit operations. These standards created a de facto framework for a certain harmonisation of the operational procedures as well as for the mitigation of risks related to the clearing, settlement and safekeeping of the required collateral.

To enable their counterparties to mobilise as collateral, any eligible security wherever issued in the EU, the Eurosystem promoted the implementation of links between CSDs and set up the “correspondent central banking model” (CCBM) as a temporary back-up solution. With this procedure, each central bank could rely on the cooperation of a host central bank in whose jurisdiction the collateral is held for the collateralisation of its credit operations.

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<sup>4</sup> See [here](#).

## 5 Cooperation between central banks and securities regulators

In November 2001, a joint CPSS-IOSCO<sup>5</sup> Task Force published after a public consultation, a report<sup>6</sup> detailing 19 recommendations designed to apply to SSSs for any type of securities, and covering both domestic and cross-border trades. They covered the following risks: legal risks, risks related to pre-settlement, settlement and custody, operational risks and others risks linked to governance, access and efficiency. With regard to regulation and oversight, the report stated that SSSs should be subject to transparent and effective regulation and oversight. Moreover, central banks and securities regulators should cooperate with each other and with other relevant authorities in pursuing these activities. A detailed assessment methodology<sup>7</sup> complemented the report a year later. This methodology intended to assist national authorities in carrying out their self-assessments or peer reviews of such self-assessments. It would also serve as guidance for international financial institutions, like the International Monetary Fund (IMF) and the World Bank, for their Financial Sector Assessment Program (FSAP) assessments and other forms of technical assistance. Finally, it aimed to offer guidance to private market participants for their own assessments of the safety and efficiency of an SSS, based on its observance of the recommendations.

As a follow-up to the CPSS-IOSCO report, the ECB and the Committee of European Securities Regulators (CESR) agreed to cooperate on topics of common interest, using the CPSS-IOSCO recommendations as a starting-point and assessing the need to adopt more stringent standards and/or recommendations for SSSs and central counterparties (CCPs) at European level. This common work resulted in a first European System of Central Banks (ESCB)/CESR consultative report Standards for securities clearing and settlement in the European Union published in September 2004. It followed a period during which a thorough assessment methodology was developed and the final version of the report Recommendations for securities settlement systems and recommendations for central counterparties in the European Union was published in June 2009.

## 6 A landmark in standard setting for the oversight of market infrastructures

In 2014, the Committee on Payments and Market Infrastructures (CPMI), the successor committee of the CPSS, together with IOSCO, published “Principles for financial market infrastructures (PFMIs) in which 24 key standards for general financial market infrastructures (i.e. payment systems, CSDs, SSSs, CCPs and trade repositories) were introduced. Issued by the CPMI and the IOSCO, the PFMIs are

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<sup>5</sup> The International Organization of Securities Commissions (IOSCO).

<sup>6</sup> CPSS-IOSCO (2001) *Recommendations for securities settlement systems*, November.

<sup>7</sup> Assessment methodology for “Recommendations for Securities Settlement Systems” - CPSS - November 2002 (bis.org).

part of a set of 12 key standards that the international community considers essential to strengthening and preserving financial stability.

In addition to these standards, the CPMI and IOSCO provided an assessment methodology for the oversight expectation applicable to critical service providers. Other documents published by the two committees cover more specific topics, like recovery plans of financial market infrastructures, financial risk management for CCPs, clearing of deliverable FX instruments, or public disclosure standards for CCPs.

## 7 A further boost to harmonised securities settlement from T2S

With the replacement in 2007 of the original decentralised TARGET network of national real-time gross settlement (RTGS) systems by a new centralised payment system, TARGET2, running on a single platform, the question arose how to best connect the various SSSs to this new payment infrastructure. After long discussions, the central banks decided to build with the support of the operators of the SSSs and various market players, a central settlement engine operated by the Eurosystem central banks. The aim of this new infrastructure was to bring securities and cash accounts together – for the purpose of the clearing and settlement – on one single platform, with a direct link to TARGET2. The main benefit of this architecture was a seamless settlement of all securities transactions across all the CSDs linked to TARGET2-Securities (T2S). Operational since June 2015, T2S is currently used by 21 CSDs from 20 EU countries. This new infrastructure induced a huge leap in the harmonisation of the different aspects of securities settlement. It ensured in particular the settlement based on a “delivery versus payment model 1” mechanism. It also facilitated the pooling of collateral and liquidity, as participating banks no longer had to keep collateral and liquidity in different locations.

## 8 The 2016 Eurosystem oversight policy framework

In July 2016, the ECB published a revised version of the Eurosystem oversight policy framework, which updated and replaced the earlier Eurosystem oversight policy framework of July 2011, taking into account the significant regulatory and institutional changes and market developments that had affected the oversight function since then. The document makes an explicit reference to the aforementioned Principles for Financial Market Infrastructures of the (CPSS-IOSCO PFMI) and on an EU level to the European Market Infrastructure Regulation (EMIR), the Regulation on settlement and central securities depositories (CSDR) and the ECB’s Regulation on oversight requirements for systemically important payment systems (SIPS Regulation). The document also emphasises the importance of close cross-sectoral and cross-border cooperation between authorities and central banks.

The main arguments for the Eurosystem's interest in the smooth functioning of FMIs in general remain unchanged. It aims at avoiding the various negative effects the malfunctioning of an FMI would be likely to have, not only on those participants directly involved, but also on the wider financial sector. It could even jeopardise the execution of monetary policy operations and, eventually, public trust in the euro.

In addition to safety considerations, the Eurosystem also sees itself as the promoter of efficiency of FMIs. Given their inherent network effects and economies of scale, the number of FMIs tends to be small and hence competition among them is typically limited. Given on the other hand that FMIs require substantial financial resources, it is important to ensure that they are operated efficiently in terms of their cost and pricing structure, that they adequately address market needs and that they have adequate risk management in place.

Oversight of FMIs is part of the Eurosystem's mandate and of one of its basic tasks listed in Article 127(2) of the Treaty on the Functioning of the European Union (the Treaty) and Article 3.1 of the Protocol on the Statute of the European System of Central Banks and of the European Central Bank (Statute of the ESCB). Article 22 of the Statute of the ESCB explicitly gives the ECB the power to make regulations in the field of clearing and payments systems. However, because of their links to payment systems, clearing and settlement systems play similar important roles in the stability and efficiency of the financial sector and in the smooth conduct of the single monetary policy. The Eurosystem has therefore a legitimate interest in the smooth functioning of these systems as well, although national authorities are still primarily in charge of their oversight. Nevertheless, to avoid diverging regimes hampering effective oversight, new arrangements for cooperation among authorities with responsibility for CCPs and CSDs have been established under EMIR and CSDR, involving also the authorities with statutory oversight competencies for these market infrastructures. The Eurosystem continues to promote consistency among the oversight policies pursued by its members in line with the PFMI.

Furthermore, the ECB and the national central banks (NCBs) continuously use the powers available to them to support the smooth operation of FMIs through their role as operator or catalyst of change, in particular when they attempt to improve the overall functioning of the market infrastructure by means of harmonisation and integration, etc.

## 9 The role of central banks in CSDR

In August 2014, the EU implemented the PFMI linked to the SSSs/CSDs into the [Regulation \(EU\) No 909/2014](#), known as the Central Securities Depository Regulation (CSDR).

The main objective of CSDR was to increase the safety and efficiency of securities settlement and of settlement infrastructures (CSDs) in the EU. It also introduced several harmonised requirements in the European Union, both for the functioning of markets and the operating of CSDs and provided, among other things, for: shorter

settlement periods, settlement discipline measures, dematerialisation of securities, prudential rules for CSDs, access rights to CSD services, increased prudential and supervisory requirements for supervised entities providing banking services ancillary to securities settlement.

The CSDR, largely inspired by the PFMLs, aimed at making the principles binding, while supplementing them with additional regulatory requirements, with the objective of further strengthening the safety and efficiency of these infrastructures.

According to the CSDR<sup>8</sup>, each Member State designates the “competent authority”, usually the supervisory authority, in charge of authorising and supervising the CSD established in its jurisdiction. Additionally, the CSDR introduces the concept of “relevant authorities”, which represent the authority responsible for overseeing the SSS operated by the CSD, the central bank in the EU issuing the most relevant currency in which settlement takes place and, where appropriate, the central bank in the EU in whose books the cash leg of an SSS is settled. During the authorisation process of a CSD under CSDR, the CSDs’ “relevant authorities” communicate to the competent authority their views on the features of the settlement system and issue a reasoned opinion, which is binding, regarding the authorisation of any banking services that the CSD wishes to provide to its participants. The Regulation also describes the consultation and cooperation mechanisms between these different authorities for the ongoing supervision, in particular the regular review and evaluation. This cooperation extends to host Member States if a CSD provides services in more than one Member State, in particular if the CSD’s activities in a host Member State are viewed as “material” for the proper functioning of the markets.

Six years after the CSDR’s implementation, 23 CSDs<sup>9</sup> have obtained their license. The remaining EEA CSDs (and some EU third-country CSDs) are in the process of receiving their licence.

More recently, the central banks made cyber risk a special focus of attention in their oversight activities, for both payment systems and other market infrastructures. Because cyber risk is an area of operational risk that has grown considerably in importance over the last few years, overseers have to assess the operational risk management of FMIs in this respect against a publicly available guidance.

Some months after the CPMI-IOSCO report, Guidance on cyber resilience for financial market infrastructures<sup>10</sup>, the Eurosystem adopted a similar approach in its report, Eurosystem cyber resilience strategy for FMIs<sup>11</sup>. The objective of this strategy has been to improve the cyber resilience of the euro area financial sector as a whole, by enhancing the “cyber readiness” of individual FMIs. It also emphasises the need to foster collaboration among FMIs, their critical service suppliers and the authorities. Specifically, the strategy aims at putting the CPMI-IOSCO guidance into practice and

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<sup>8</sup> Articles 10 and 11.

<sup>9</sup> See [here](#).

<sup>10</sup> [Guidance on cyber resilience for financial market infrastructures \(bis.org\)](#).

<sup>11</sup> [Cybersecurity for the financial sector \(europa.eu\)](#).

comprises three pillars: FMI readiness, sector resilience and strategic regulator-industry engagement.

To provide the FMI's with the appropriate guidance, in December 2018 the Eurosystem published the Cyber resilience oversight expectations (CROE)<sup>12</sup>. The levels of expectation set out in the CROE provide a benchmark for overseers to determine their FMI's' cyber resilience capabilities against the CPMI-IOSCO Guidance. In 2018, the ECB went a step further and published an EU-wide guide, TIBER-EU<sup>13</sup>, describing how authorities, overseen entities, along with threat intelligence and red-team providers, should work together to test and improve the cyber resilience of the overseen entities by carrying out a controlled cyberattack. TIBER-EU is the European framework for threat intelligence-based ethical red-teaming. The TIBER-EU framework is designed to be adopted on a voluntary basis by relevant authorities, be it as a supervisory or oversight tool, or as a trigger to enhance cyber resilience of individual FMI's.

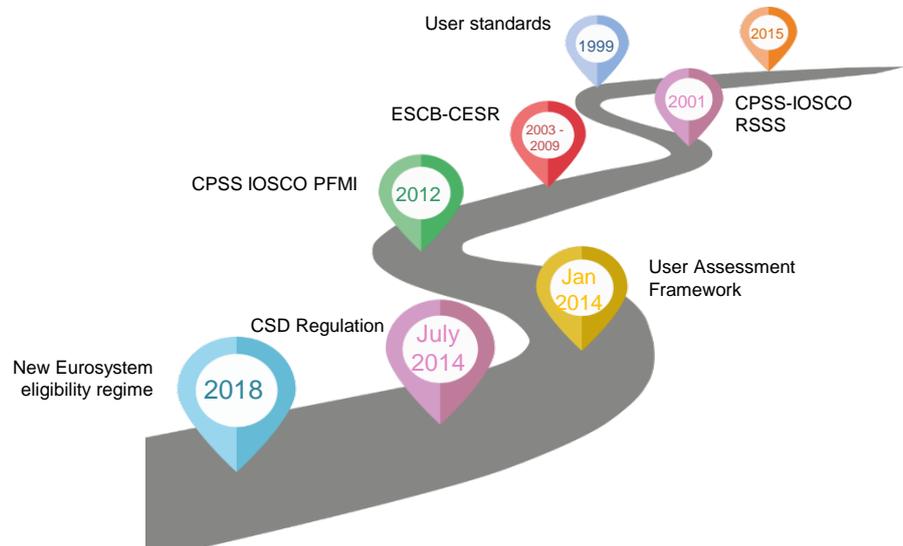
To conclude, the community of central banks of the advanced economies, and the ECB and the Eurosystem central banks in particular, have over the years devoted significant time and resources as users, central banks of issue and as overseers to improve the soundness and the efficiency of the securities settlement industry. In doing so, central banks have played a key role in limiting systemic risks in the post-trade industry and fostering financial stability in general. They will continue to do so in cooperating with other supervisory authorities to maintain the high level of soundness and efficiency of the EU SSS industry as a whole.

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<sup>12</sup> [Cyber resilience oversight expectations for financial market infrastructures \(europa.eu\)](#).

<sup>13</sup> [TIBER-EU \(europa.eu\)](#).

# Evolution of SSS/CSD standards, oversight and regulation





Part 7  
Oversight of Central Counterparties  
(CCPs)

# Chapter 1 – Financial stability of central counterparties and trade repositories

Prepared by Steven Maijor<sup>1</sup>

## Central counterparties and trade repositories effectively contribute to financial stability

Financial stability is one of the three core objectives in the mandate of the European Securities and Markets Authority (ESMA). It has been at the centre of ESMA's focus and activities, especially over the past year due to quite exceptional circumstances since the outbreak of the COVID-19 pandemic. The resulting economic fallout has subjected European and global financial markets to pressures not seen since the global financial crisis over a decade ago. The current situation has tested the regulatory framework that was designed precisely as a response to the previous crisis back in 2008. So, now is a good time to look back at the safeguards put in place since then, assess how they performed, and see what should be done next.

Going back to 2009, the objectives agreed on by the G20 Leaders at the Pittsburgh meeting are well known and have been widely implemented at global level. Indeed, the G20 Leaders agreed on a small set of succinct, but very pivotal, objectives for the over-the-counter (OTC) derivative markets – i.e. that all standardised OTC derivative contracts should be traded on exchanges or electronic trading platforms, cleared through central counterparties (CCPs), where appropriate, and that all OTC derivative contracts should be reported to trade repositories (TRs).

The European Union incorporated these trade reporting and clearing obligations into the single rulebook for the EU's capital market via the European Market Infrastructure Regulation (EMIR), with a two-step implementation approach. EMIR ensured first that there was an appropriate system of market infrastructures in place to sustain and support broad adoption of the reporting and clearing obligations by market participants in a second stage. In particular, CCPs and TRs were asked to demonstrate that they complied with a number of robust standards to obtain authorisation. The role of TRs and CCPs has, as a result, increased significantly. These market infrastructures now play a fundamental and central role in OTC derivatives market functioning, with the objective of supporting financial stability.

The EMIR requirements have now been in place for several years and have been broadly implemented. There are a large number of CCPs and TRs that have been authorised to offer their services, and market participants in the EU must comply with reporting and clearing obligations. It should also be noted that, whereas the G20 Leaders' focus was on OTC derivatives, the robust standards and obligations put in

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<sup>1</sup> Steven Maijor has been the Chair of the European Securities and Markets Authority (ESMA) until March 2021. He is currently Executive Director at De Nederlandsche Bank.

place in the EU via EMIR also reinforced the safeguards beyond that category of financial instruments. For instance, exchange traded derivatives must now also be reported to TRs. Likewise, making CCPs safer, not only benefited the trading and clearing activity of OTC derivatives, but also that of all other financial instruments cleared through them. As a result, and as intended with the initial reforms, these market infrastructures are now widely used and are there to help us better face market events and to more adequately calibrate regulatory policies, thus strengthening financial stability and confidence in markets.

Looking at CCPs first, the COVID-19 crisis has given us a powerful example of their importance and resilience. Following the start of the COVID-19 pandemic, most financial markets experienced drastic price and volume movements and EU derivative markets were no exception. We should remain cautious about how we view these events, as the COVID-19 crisis is far from over and will have long lasting consequences. However, it is fair to say that in March/April of last year, derivatives markets and the CCPs themselves were able to overcome – at the peak of the price movements – the challenges of distressed market conditions. It is a strong signal that the reforms made in response to the previous global financial crisis have helped market participants and CCPs to cope with the extreme market turbulence. On the one hand, a broad reliance on central clearing for certain asset classes, compared to the previous crisis, has helped to reduce counterparty risk and limit the overall need for collateral through netting efficiencies; while on the other, the steady performance of CCPs in this period has also helped avoid a potential worsening of the situation.

The heightened volatility experienced during these months triggered increased liquidity needs to meet margin calls, which ESMA monitored closely in coordination with the national authorities involved in the supervision of CCPs. However, as prescribed in the EU regulatory framework, CCPs' risk management practices incorporate anti-procyclicality measures, which prevented overly-high collateral calls adding undue pressures on market participants.

The level of the shocks experienced during the March/April 2020 turmoil, showed that the shock scenarios used in the third EU-wide CCP stress test exercise, conducted by ESMA and published in July 2020, were plausible. Although we cannot completely compare what was experienced by CCPs with how the CCP stress test framework is modelled, the comparison of the levels of the shocks is still a useful exercise and further validates the importance and the relevance of this important tool for ESMA. This recurrent multi-CCP stress test exercise helps to ensure a resilient EU CCP landscape. However, as previously mentioned, given that the COVID-19 crisis is still unfolding, we need to be cautious. Indeed, additional extreme moves may still be experienced and CCPs still need to remain prepared to mitigate and manage the potential risks that may result.

ESMA has now been in charge of registering and supervising TRs since 2013 and has adopted a data-driven, risk-based supervisory approach towards them, with the main objective of enhancing the quality of data made available by TRs to authorities. Also, in line with this objective of making TR data more consistent and more widely available to authorities in their supervisory activities, an IT system called TRACE was developed to provide authorities with a single access point to trade data. Every

year, ESMA carries out a risk assessment and identifies areas of focus for specific TRs and/or the industry at large. Key to the enhanced data quality has been the close cooperation with the European System of Central Banks and the European Systemic Risk Board. In addition to data quality, other areas of focus of supervision are related to information security, operational risk and business continuity, IT processes and system reliability, and adequacy of human resources.

TRs also played an important role at the peak of the COVID-19 crisis – being one of the sources of data that enabled regulators to monitor how markets and participants were coping with the situation. This is continuing, as we are using the data to help us draw lessons from these events. For instance, ESMA finalised and published its Annual Statistical Report on EU Derivatives Markets in November 2020, which looks back at how the OTC derivatives markets performed. This is one of the many use cases that illustrate the importance of TRs and the data they collect in the ongoing work to ensure financial stability.

More broadly speaking, TR data use has increased over time and, in addition to policy and supervisory actions, this has also contributed to a great improvement in data quality. To name just a few: (i) the supervision of compliance with the reporting obligation, (ii) the calculations for the determination of the classes of derivatives subject to the clearing obligation under EMIR and those subject to the trading obligation under the Markets in Financial Instruments Regulation (MiFIR), (iii) the assessment of non-financial counterparties (NFCs) activity, (iv) corroboration of decisions relating to the authorities' exemptions relating to position limits for commodity derivatives under MiFIR, and (v) the monitoring of the progress in the implementation of the G20 reforms.

In short, CCPs and TRs have been effective and have brought positive results, which have been demonstrated in a variety of situations. In addition, building on this positive experience from the past few years, the recent legislative changes leading to enhancements of the regulatory and supervisory frameworks for CCPs and TRs have further contributed to the efforts to preserve financial stability.

With regard to CCPs, the amendments grouped in the EU Regulation, known as "EMIR 2.2", have introduced an enhanced supervisory convergence framework for EU CCPs and a better equipped supervisory framework for third-country CCPs that are of systemic importance to the EU. Both aspects are fundamental and bring significant improvements, with the objective of properly managing clearing activity and its systemic risk for the EU. A new governance structure has been put in place with the set-up of a CCP Supervisory Committee composed of all the relevant EU authorities involved in the supervision of EU CCPs and the appointment of a Chair and two independent members to lead this work, along with dedicated staff at ESMA.

This new Regulation has provided the EU with a much more robust and proportionate framework for third-country CCPs taking into account the systemic importance of each third-country CCP for the Union, associated with the size of their activities in the EU and the related risk they may pose to the EU. This new regime has already been applied in the recognition of the three CCPs established in the

United Kingdom, whose authorisation under EMIR expired at the end of the Brexit transition period.

In September 2020, ESMA adopted decisions recognising two of the three UK CCPs as systemically important for the EU (Tier 2 CCPs). Consequently, following the end of the transition period, the two UK Tier 2 CCPs remain subject to the EU EMIR requirements and to closer supervision by ESMA, in cooperation with the home supervisor, and remain in the scope of ESMA's CCP stress test exercises.

Finally, I should also mention what is upcoming for CCPs, with the introduction of a CCP Recovery and Resolution regime. The European institutions have recently adopted CCP Recovery and Resolution legislation, which further contributes to preserving financial stability by ensuring the continuation of CCP services in the most extreme scenarios – beyond those covered by EMIR requirements for CCP risk management. ESMA will continue working on the details of these rules and their implementation in the months ahead.

Legislators have also introduced improvements in TRs, in particular, the use of these infrastructures was extended within the Securities Financing Transactions Regulation (SFTR). The main goal of SFTR is to improve transparency of securities financing markets and reduce risks to financial stability emerging from shadow banking activities. Similar to EMIR, this Regulation was developed and implemented in the EU following the Financial Stability Board's recommendations.

Reporting under SFTR was launched successfully in July 2020, with the majority of counterparties now able to effectively report to the TRs, reporting volumes have steadily increased since then. This positive start has been the fruit of months of preparations for the go-live date, during which TRs and counterparties worked on implementing the new framework based on ESMA's comprehensive documentation, comprising reporting guidelines, validation rules and xml schemas for submission of reports. ESMA continues to work with industry to resolve any implementation issues and, leveraging on its EMIR reporting experience, is putting in place a framework for the continuous monitoring and enhancement of SFTR data quality.

In conclusion, the importance of CCPs and TRs for financial stability has been proven and, based on that positive experience, the co-legislators have strengthened their role further. Looking forward, although the role of CCPs and TRs does not directly include the channelling of funds to the economy – or any other similar functions that help spur growth in the EU – they play an important role in providing stability and confidence in the functioning of financial markets. As a result, they in turn indirectly increase investor protection and create the conditions for better funding of the economy and its financial needs. We all need to continue our efforts to strengthen their role and use.

# Chapter 2 – EMIR and EMIR 2

Prepared by Clément Rouveyrol<sup>1</sup>

## 1 Context of the adoption of EMIR

The significant role played by over-the-counter (OTC) derivatives markets in the propagation of the 2008 financial crisis led to an international regulatory push to improve these markets, as set out in the G20 Leaders' Statement at the September 2009 Pittsburgh Summit:

*“All standardized OTC derivative contracts should be traded on exchanges or electronic trading platforms, where appropriate, and cleared through central counterparties by end-2012 at the latest. OTC derivative contracts should be reported to trade repositories. Non-centrally cleared contracts should be subject to higher capital requirements. We ask the FSB and its relevant members to assess regularly implementation and whether it is sufficient to improve transparency in the derivatives markets, mitigate systemic risk, and protect against market abuse.”*

Following this decision, G20 jurisdictions put in place regulatory frameworks to ensure that liquid and standardised OTC derivative contracts would be cleared through central counterparties (CCPs). Like listed securities and derivatives markets, which were already subject to central clearing, centrally clearing OTC derivatives would now reap the risk management benefits of using CCPs, including a high level of collateralisation, including through stress-tested mutualised resources and robust, centralised default management. To provide further transparency in derivatives markets and allow authorities to monitor exposures and systemic risk, trade repositories were also established so that counterparties would report their derivatives transactions. Finally, where derivative contracts were not suitable for central clearing, they would need to be subject to more stringent prudential requirements to ensure that exposures were appropriately collateralised and to incentivise central clearing whenever possible.

Due to CCPs' growing importance for the resilience of the overall financial system, it was also deemed necessary to ensure that CCPs in all major jurisdictions met high standards of operational and financial resilience. This was achieved through the implementation of the 2012 CPSS-IOSCO<sup>2</sup> Principles for Financial Market Infrastructure (PFMIs) as they apply to CCPs, across all G20 jurisdictions.

To transpose the new requirements for OTC, EU legislators adopted Regulation No 648/2012 on OTC derivatives, central counterparties and trade repositories, also known as the European Market Infrastructure Regulation (EMIR).

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<sup>2</sup> The Committee on Payment and Settlement Systems (CPSS) and the International Organization of Securities Commissions (IOSCO).

## 2 Regulatory requirements under EMIR

Title II of EMIR transposed the main G20 commitments, in particular the clearing obligation for OTC derivatives, the reporting obligation, and risk mitigation techniques for non-centrally cleared OTC derivatives.

The clearing obligation for OTC derivatives is implemented through regulatory technical standards prepared by the European Securities and Markets Authority (ESMA) and adopted by the European Commission. It covers a range of OTC interest rate derivatives in major international currencies, as well as in certain EU currencies, and a range of credit default swap indices in euro and US dollar. Under EMIR, all derivatives counterparties (except non-financial counterparties whose exposures fell below certain thresholds) were subject to the clearing obligation, ensuring a very broad scope of application. However, to ensure proportionality to the systemic risk involved in view of the costs of accessing CCPs for small counterparties, EU legislators thereafter adjusted the scope to exempt certain financial counterparties with small derivatives exposures, and to better target the obligation for non-financial counterparties. This amendment was adopted in 2019 as part of the Commission's regulatory fitness and performance programme (REFIT), and is known as "EMIR REFIT".

EMIR also established a reporting obligation for all counterparties in respect of any derivative contract or modification or termination thereof, as well as requirements for the authorisation of trade repositories (see cross-reference to the chapter on TRs).

Finally, EMIR set out operational and prudential requirements for OTC derivatives not cleared by a CCP. Operational requirements include the timely confirmation of terms and the reconciliations of portfolios. Prudential requirements include the daily mark-to-market value of outstanding contracts, the segregated exchange of collateral to cover bilateral derivative exposures and capital requirements to cover non-collateralised financial risk.

Titles III, IV and V of EMIR, and the regulatory technical standards and ESMA guidelines that supplement them, largely transposed the PFMI as they apply to CCPs into EU law. This includes organisational requirements, which cover all governance and operational issues; conduct of business rules, which include participation requirements, transparency, and segregation and portability; and prudential requirements, including margins and other financial resources covering credit risk, liquidity risk controls, collateral requirements, investment rules, default management, and settlement. Title V regulates interoperability arrangements between CCPs, which allow clearing members in one CCP to clear certain transactions concluded with a clearing member in another CCP – mostly outright securities purchases and repurchase agreements. For instance, CCPs that enter into interoperability arrangements must exchange segregated margins to cover each other's default, and must return such margins in the event that they themselves default.

Overall, the prudential requirements for CCPs set out in EMIR and its regulatory technical standards are more specific and conservative than the PFMI and their

transposition in other jurisdictions. For instance, margin requirements for OTC derivatives must cover 99.5% of potential market movements (rather than 99%), and CCPs must assume, in most cases, that their default management will take at least two days from the last collection of margins (rather than one day in some jurisdictions). Margin calculations must also apply specific measures to limit procyclicality in margin requirements, which maintain margins at a higher level during periods of low volatility to avoid sudden margin increases in times of market stress. Finally, CCPs must ensure that their financial resources, covering credit and liquidity risk, can withstand the default of the two clearing members to which they have the largest exposure in extreme but plausible market conditions (the “cover 2” requirement); whereas the PFMI only prescribe a cover 1 requirement in most cases.

## 3 The supervisory framework for CCPs, from EMIR to EMIR 2

### 3.1 Competent authorities and supervisory colleges

The supervision of EU and third-country CCPs has been a matter of ongoing policy debate within the EU, with significant amendments (known as “EMIR 2”) being agreed by EU legislators in late 2019, which entered into force on 1 January 2020.

In the EU, the supervision of CCPs falls primarily on competent authorities designated at national level in each Member State. Member States have designated between one and three competent authorities for CCPs. Competent authorities are typically central banks, markets supervisors or prudential supervisors. Except for certain supervisory procedures envisaged under EMIR, it is left to Member States to define the powers and governance of competent authorities, insofar as they have sufficient supervisory and investigative powers, including the conduct of on-site inspections, and can impose administrative measures on CCPs. These arrangements have largely been left in place by EMIR 2.

For each CCP under their supervision, competent authorities must establish and manage a supervisory college which brings together the authorities which, due to their responsibilities and mandates, have an interest in the operations and risk management of the CCP. These include ESMA, the supervisors of the CCP’s main clearing members, the supervisors of trading venues, other CCPs and central securities depositories linked to the CCP, the national central bank acting as overseer (where relevant), and the central banks of issue of the most relevant currencies cleared by the CCP. EMIR 2 has allowed a broader range of clearing member supervisors and central banks of issue to request membership of supervisory colleges.

The main functions of CCP supervisory colleges are the regular sharing of confidential information and data by competent authorities regarding CCPs' activities and risk management, and the adoption of college opinions on significant supervisory decisions. Supervisory colleges are also essential channels of communication between authorities in emergency situations affecting the functioning of a CCP. The preparation of these opinions allows college members to scrutinise supervisory decisions and the underlying changes in CCPs' operations and risk management. Under EMIR, college opinions were required for the CCP's authorisation and its withdrawal, for extensions of activities and services beyond those covered by the authorisation, and for the validation of significant risk model changes. EMIR 2 has extended their scope to decisions on acquisitions and shareholder suitability, as well as outsourcing of risk management functions. EMIR 2 has also allowed college members to propose and adopt recommendations which competent authorities must take into account. Overall, supervisory colleges play an important role in ensuring the dissemination of critical information to all EU authorities and in promoting a common supervisory culture across the Union.

### 3.2 The growing role of ESMA

Although the supervision of EU CCPs is mainly carried out at national level, the role of ESMA in ensuring supervisory convergence throughout the EU has developed and grown over time, in particular with the adoption of EMIR 2.

Under EMIR, ESMA's role was largely limited to its regular activities as a European supervisory authority, which included preparing the technical standards to further specify the provisions of EMIR, where mandated by the legislation. In addition, it adopts documents to promote a harmonised application of EMIR – guidelines and recommendations, questions and answers, and opinions. ESMA conducts peer reviews of national competent authorities to assess whether they supervise certain aspects of CCP risk management in similar ways, and to identify good supervisory practices. Finally, it has a critical role in the assessment of CCP risk models, as it conducts a validation of significant risk model changes and carries out supervisory stress tests to evaluate the financial resilience of CCPs.

EMIR 2 has expanded ESMA's role in the supervisory framework for EU CCPs, – although its new prerogatives remain largely non-binding – and has created a new structure within the authority, the CCP Supervisory Committee: which includes three independent members (including the Chair) and also allows for the involvement of central banks of issue in certain matters. In addition to the tasks outlined above, the CCP Supervisory Committee ensures horizontal coordination on supervisory activities and market developments, and prepares ESMA opinions on a range of supervisory decisions taken by competent authorities, which those authorities must duly take into account.

### 3.3 Third-country CCP supervision: balancing cross-border market access and financial stability imperatives under EMIR 2

As for other types of financial services, the provision of clearing services by third-country CCPs to EU market participants relies on the equivalence framework: once the Commission has adopted an equivalence decision for a third-country jurisdiction, CCPs in that jurisdiction can be recognised by ESMA and thereafter provide services in the EU.

Under EMIR, once an equivalence decision was adopted for a jurisdiction, the recognition process was largely seen as a formality, as equivalence was the only substantial condition for recognition. While ESMA consulted other EU authorities and established cooperation arrangements with third-country authorities, the amount of information on third-country CCPs that was shared with EU authorities (other than ESMA) was very limited. ESMA also had no basis to scrutinise the activities and risk management of third-country CCPs. Given the systemic importance of CCPs, including some major third-country CCPs, for the financial system of the EU and its Member States, these deficiencies were considered problematic as the equivalence framework should strike a balance between allowing for broad cross-border market access and protecting the EU's financial stability and ensuring a prudential level playing field between EU and third-country actors. With the UK's withdrawal from the EU resulting in major UK CCPs becoming third-country CCPs, this system was no longer sustainable.

EMIR 2 fundamentally reworked the recognition process for third-country CCPs by introducing additional conditions for recognition for CCPs of systemic importance for the EU or one of its Member States. Based on criteria specified in EMIR 2 and in a Commission delegated act, ESMA designates such CCPs as "Tier 2 CCPs", whereas CCPs that are not considered systemically important for the EU are "Tier 1 CCPs" – which remain subject to the framework described above. Tier 2 CCPs must meet additional conditions to obtain recognition, including compliance with EMIR under the supervision of ESMA. ESMA can also grant comparable compliance to Tier 2 CCPs, where they demonstrate that they meet EMIR requirements through their compliance with local regulations. The CCP Supervisory Committee is tasked with carrying out these supervisory activities over Tier 2 CCPs. This ensures that these CCPs are under scrutiny by an EU authority and should meet the EU's higher prudential standards, thus protecting the EU's financial stability and restoring a level playing field. EMIR 2 also instituted a third-country CCP college bringing together all the EU authorities which have an interest in the good functioning of CCPs generally, thus ensuring the broad dissemination of at least some amount of information on the activities of third-country CCPs recognised in the EU. Finally, where clearing services provided by a Tier 2 CCP are considered "of such substantial systemic importance" that they should only be provided by an EU CCP, EMIR 2 foresees a mechanism allowing for these services to be denied recognition in the EU.

EMIR 2 also broadened the role of central banks of issue in the supervisory set-up, including by providing for their participation in the CCP Supervisory Committee in relation to third-country CCPs, supervisory stress testing and EU market

developments, as well as in the Third-Country CCP college. EMIR 2 also allows central banks to join investigations and on-site visits carried out by ESMA over Tier 2 CCPs (for more details on the Eurosystem CBI role see Chapter on “The ECB and Eurosystem role in CCP oversight and colleges”).

## 4 Future challenges in CCP supervision

As outlined above, progress was made with EMIR 2 to step up the efforts towards supervisory convergence in the EU and to increase the level of scrutiny towards third-country CCPs whose activities are material to the stability of the financial system. However, the policy debate is likely to continue on both fronts.

As regards EU CCPs, the Commission proposal for EMIR 2 originally envisaged that ESMA would have a more binding role in approving the supervisory decisions of EU CCPs. While this mechanism was ultimately abandoned, it seems clear that EMIR 2 is only a first step in the effort to further coordinate supervisory activities across the EU. In particular, the EU's largest CCPs are critical to the financial systems of multiple Member States, or that of the EU as a whole, and a situation where such a CCP is in financial distress could lead to losses that would be passed on to clearing members across the EU. The reflection on a more integrated supervision of EU CCPs is therefore expected to continue in the years ahead.

The third-country recognition framework has also been a topic of debate in recent years, in particular as third-country jurisdictions objected to what they saw as a burdensome and duplicative Tier 2 framework and insufficient deference shown to their domestic authorities. Eventually, this debate was temporarily resolved by narrowing down the scope of the Tier 2 framework to a small number of CCPs, whose critical importance for the EU justified such an intrusive approach. However, this leaves a gap in the treatment of CCPs that do not meet the high thresholds to be considered Tier 2, but whose activities are still very material to the EU's financial stability. In this case, there could be further reflection on the conditions that could be applied in terms of information sharing and consultation with EU authorities, within the framework set out in international standards for cross-border cooperation between authorities, in particular under Responsibility E of the PFMI.

Finally, market developments and recent events such as events of default or variations in margin requirements during the periods of market stress linked to the COVID-19 pandemic are likely to lead EU authorities to re-examine certain aspects of the regulatory framework. For instance, the COVID-19 margin fluctuations led to renewed attention being given to model procyclicality. Likewise, over recent years, CCPs have developed new participation models to give direct access to buy-side participants, blurring the regulatory distinction between clearing members and clients. Default events and international work on auctions could also lead to further reflection on the EMIR requirements for default management procedures. So, while the focus in recent years has been on the EU's supervisory architecture, the years ahead may well see a shift towards the substance of regulatory requirements, if it is

needed to ensure continued control of risks in a dynamic and evolving global industry.

# Chapter 3 – Central counterparties: technical standards, supervisory convergence and stress test

Prepared by Giampiero Carlà and Andreas Georgopoulos<sup>1</sup>

Central counterparties (CCPs) are critical infrastructures for the development and the stability of financial markets. By interposing themselves between sellers and buyers of financial instruments, they guarantee the physical or financial settlement of the cleared transactions, assuming for themselves the respective counterparty credit risk (i.e. any loss resulting from the default of a clearing member). In order to mitigate the resulting credit risk, CCPs implement risk management tools, including membership criteria and members' margins and contributions to a default fund, which aim to maintain potential default losses within a given risk appetite in extreme market conditions.

CCPs have played a key role in building trust in and facilitating the functioning of financial markets. In particular, during the financial crises of 2008, they contributed to absorbing shocks in the markets they cleared and containing any further contagion across markets. Since then, CCP clearing services have further expanded in financial markets, thanks also to regulatory changes imposing a clearing obligation for certain financial instruments. CCPs also became key market infrastructures in commodity and energy markets.

However, CCPs are also a source of systemic risk, as the failure of a CCP could be disruptive for the functioning of the markets and the members it serves, and for financial stability if the failure of a CCP produces contagion effects via the links in an interconnected financial system. Therefore, like all systemically important market infrastructures, it is vital that CCPs have an adequate risk management framework in place, including rules, policies and procedures, to monitor and mitigate the risks they are exposed to, and to ensure their resilience in adverse market conditions. In 2010, the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities (IOSCO) developed global standards for the resilience of financial market infrastructures (the CPMI-IOSCO Principles for Financial Market Infrastructures – or “PFMIs”), including some standards specifically dealing with CCPs.

In the EU in 2012, Regulation 648/2012 (the European Market Infrastructure Regulation or EMIR) introduced a common European regulatory and supervisory framework for the authorisation and recognition of CCPs, assigning a key role to the European Securities and Markets Authority (ESMA) in: i) further developing a single rulebook for those CCPs providing services in the Union; ii) ensuring supervisory convergence among the national competent authorities (NCAs) designated in each

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Member State, with decentralised supervisory responsibilities over those CCPs established therein; and iii) initiating and coordinating Union-wide assessments of the resilience of EU CCPs to adverse market developments (the EU-wide CCP stress tests). Besides, EMIR also entrusted ESMA with the task of recognising the CCPs established in third countries (TC CCPs) to provide services in the Union.

In 2019, EMIR was amended (with Regulation 2019/2099 – EMIR 2.2) in order to: a) strengthen the role of ESMA in supervisory convergence through the set-up of a CCP Supervisory Committee as an internal committee of ESMA's Board of Supervisors; and b) enhance the recognition regime for TC CCPs with the introduction of ESMA's new supervisory powers for those more systemically important TC CCPs (Tier 2 CCPs), together with a process to deny recognition to a TC CCP's clearing services where they are of such substantial systemic importance that they should be provided from within the Union.

This chapter focuses on ESMA's three key tasks with respect to CCPs established in the EU (EU CCPs).

## 1 Single rulebook

EMIR requirements consist of a comprehensive set of detailed provisions encompassing capital requirements, organisational requirements, conduct of business rules, prudential requirements, as well as requirements for interoperability arrangements between CCPs. In accordance with the mandates specified in EMIR and shortly after its adoption, the European Banking Authority (EBA) developed regulatory technical standards (RTS) further specifying the capital requirements in Article 16 of EMIR ([Commission Delegated Regulation 152/2013](#) and ESMA developed RTS on other CCP requirements ([Commission Delegated Regulation 153/2013](#)), specifying several organisational and prudential requirements in Title IV of EMIR and Implementing Technical Standards (ITS) on CCP records ([Commission Implementing Regulation 1249/2012](#)). ESMA also developed RTS on the functioning of CCP colleges ([Commission Delegated Regulation 876/2013](#)).

The regulatory requirements for CCPs as established in EMIR, as further specified in the related RTS, reach a level of granularity which is unprecedented compared to most third-country jurisdictions. Moreover, these requirements often adopted the most conservative and stringent of assumptions and conditions in order to ensure that CCPs maintain a high level of resilience (e.g. requiring that CCPs should maintain a level of prefunded resources to withstand the default of its top two clearing members – i.e. cover 2) and minimise any potential contagion risk (e.g. through anti-procyclicality measures preventing liquidity pressures on clearing members stemming from margin calls during periods of high market volatility).

In order to ensure a consistent implementation of EMIR requirements, ESMA developed Questions and Answers on EMIR ([EMIR Q&A](#)) in order to clarify the most frequent and relevant questions asked by the various stakeholder. The EMIR Q&A is a living document which is published on ESMA's website and updated on a regular

basis in order to include any significant new question. As of today, the EMIR Q&A includes 23 Q&As on CCPs' regulatory framework and requirements. ESMA will continue to address new questions that may receive in the future in accordance with the dedicated process for Q&As that has been recently revisited following the review of ESMA's founding regulation.

The recent review of EMIR did not entail any amendment to the requirements for CCPs. After all, the performance of EU CCPs during the market turbulences experienced in the past decade (including for instance the 2014 sovereign debt crisis, the 2016 Brexit referendum, and more recently the 2020 COVID-19 crisis) proved that the current set of requirements remain adequate to ensure a high level of resilience of EU CCPs. Regarding the respective RTS, over the past years, ESMA has reviewed certain provisions of the 2013 RTS on CCPs requirements ([Regulation 2016/822](#)) only once, in order to adjust them to specific circumstances.<sup>2</sup> More recently, ESMA proposed amendment to the RTS on the functioning of the college to reflect the recent amendments to EMIR in relation to colleges ([Commission Delegated Regulation 2020/2145](#)). Looking ahead, ESMA may initiate a review of the adopted RTS where it considers it necessary to better specify an EMIR requirement or adjust any existing RTS provision to relevant developments.

Nevertheless, the recent amendments to EMIR introduced new mandates for ESMA to develop draft RTS relating to the extension of authorisation for additional services and activities, and the validation of significant changes to risk models. ESMA has recently published its proposal for draft RTS for public [consultation](#).

Finally, it should be mentioned here that a new regulation on the recovery and resolution of CCPs ([Regulation \(EU\) 2021/23](#)) was adopted on 16 December 2020. This new regulation also assigns to ESMA, several mandates for the development of RTS on various aspects of CCP recovery and resolution.

## 2 Supervisory convergence

EMIR established a decentralised framework for the authorisation and supervision of CCPs established in the EU (EU CCPs) whereby CCPs are subject to the direct supervision of the NCAs of the Member State where they are established, although such NCAs have to establish a college of supervisors for each CCP they supervise in order to facilitate an effective cooperation with other relevant national authorities across the EU.

In accordance with EMIR, ESMA has played a key role in promoting supervisory convergence and a common supervisory culture among NCAs with supervisory responsibility over CCPs.

First, ESMA adopted several guidelines and opinions with respect to various aspects of EMIR, in order to promote a consistent implementation of its provisions. These

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<sup>2</sup> This related to the time horizons for the liquidation period for financial instruments other than OTC derivatives held in omnibus client accounts or in individual client accounts, under certain circumstances.

included supervisory governance arrangements (such as the [guidelines on the written agreement of CCP colleges](#) and on the implementation of the [CPMI-IOSCO Principles for Financial Market Infrastructures](#); the opinions on [CCP colleges' voting procedures](#) and [composition](#), and on the [indicators for additional services/activities](#) and significant changes to risk models), as well as CCP requirements (such as the [guidelines on interoperability arrangements](#) and [anti-procyclicality margin measures](#) and the [opinion on liquidity risk assessment](#)).

Second, through its active participation in CCP colleges, ESMA promoted a consistent implementation of EMIR provisions and of the related RTS, guidelines and opinions, across CCPs, NCAs and colleges.

Third, in accordance with a specific mandate in EMIR, ESMA conducted several annual peer reviews of NCAs' supervisory activities related to the authorisation and supervision of CCPs (CCP peer reviews), for which it adopted a specific methodology<sup>3</sup> tailored to the characteristic of such mandatory peer reviews. A first [review in 2015 focused on the functioning of CCP colleges](#). The following peer reviews focused on selected CCP requirements: in 2016 on [margin and collateral requirements](#); in 2017 on default management [procedures](#); in 2018 on collateral and [funding arrangements](#). The 2020 peer review deals with liquidity stress testing.

Peer reviews are based on an in-depth comparative analysis of supervisory activities of NCAs on CCPs with respect to the selected EMIR requirements, based on the NCAs' responses to a detailed questionnaire. The resulting reports are published on ESMA's website and provide an overview of the approaches followed by NCAs and presents ESMA's assessment of the degree of convergence reached by NCAs. In particular, they highlight best practices and, where relevant, may identify issues for further consideration in order to enhance supervisory practices or possible cases of non-compliance for further follow-up.

The recent review of EMIR has strengthened the role of ESMA in promoting supervisory convergence. Indeed, NCAs have now to submit their draft decisions to ESMA before adopting any act or decision related to certain requirements in EMIR<sup>4</sup> (and can voluntarily submit draft decisions in relation to other requirements) and ESMA shall provide an opinion on that draft decision to the competent authority, where necessary, to promote a consistent and coherent application of that requirement. In particular, the CCP Supervisory Committee is entrusted with the responsibility for preparing the opinions on NCAs' draft decisions. Moreover, the CCP Supervisory Committee is explicitly tasked with promoting supervisory convergence among competent authorities and colleges by ensuring regular exchange and discussion on relevant developments relating to EU CCPs and, where necessary, may request the Board of Supervisors to consider the adoption of guidelines, recommendations and opinions.

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<sup>3</sup> [See here](#).

<sup>4</sup> These relates to access provisions in Articles 7 and 8; the initial authorisation under Article 14 and any extension of the authorisation under Article 15; the requirements on record keeping (Article 29); shareholders and members with qualifying holdings (Articles 30 to 32); conflict of interests (Article 33); outsourcing (Article 35); general provision on conduct of business (Article 36); and interoperability arrangements (Article 54).

### 3 CCP stress tests

The first ever EU-wide supervisory stress test on CCPs was completed by ESMA in April 2016; and was the first exercise of this type and scale ever conducted in either the EU or other jurisdictions. More regulators in the CCP space have followed this paradigm since and ESMA has conducted two additional exercises, with the latest one published in July 2020.

Beyond the regulatory mandate, supervisory stress tests are an important tool to monitor potential emerging systemic risk. Although CCPs were set up to reduce systemic risk stemming from bilateral relationships, they are still counterparties to all their clearing members. Moreover, they rely on services provided by other entities, such as settlement banks, custodians and different liquidity providers that together with clearing members and CCPs build a network of interconnected entities. Therefore, any shortcomings leading to a failure to mitigate risks could potentially invoke spill-over effects and exacerbate systemic risk. The EU-wide exercise complements the stress tests CCPs already run on a daily basis. This is because individual CCPs' stress tests focus on their own environment, including participants, cleared products and business activity. The supervisory stress test looks at the entire system of scoped CCPs and considers the possible spill-over effects resulting from CCPs' interconnectedness.

The objectives of the EU-wide stress test exercise come directly from the legal mandate given to ESMA under EMIR. The objectives are to assess the resilience of CCPs to adverse market developments, identify any potential shortcomings, and issue recommendations as appropriate. The exercise is not aimed at assessing the compliance of CCPs with regulatory requirements, which is expected to be ensured through the supervision by the NCAs and the colleges. The overall design of the stress test framework, as evolved through the years, has been guided by a number of overarching principles. ESMA has aimed to assess the resilience of all CCPs in scope, individually and as a system on the basis of common methodologies and criteria. The market shocks and stress assumptions were combined with the simultaneous default of market participants, while the scenario design considered the prudential requirements.

The first stress test exercise focused on the credit counterparty risk that CCPs would face under a combination of market price shocks and clearing member defaults. In that respect, it reused CCPs' market scenarios, adjusted where needed to meet a set of minimum shocks, also complemented with hypothetical scenarios derived by scaling up margin requirements. The exercise also included a reverse credit stress test component, that aimed to identify the breaking point assuming an increased number of defaults. A knock-on analysis was used to assess the impact of the loss-sharing mechanism of CCPs on non-defaulting clearing members. A network map was used to visualise and confirm the high degree of inter-connectedness of CCPs through common clearing members. Finally, and in addition to the core stress test exercise we carried out an analysis to assess the degree of concentration of CCPs mutualised resources using the Herfindahl-Hirschman index (HHI).

The second supervisory stress test incorporated significant improvements. The scope was extended to not only cover credit counterparty risk but also liquidity risk. It assessed the sufficiency and timely availability of CCPs' liquid resources under a combination of market price shocks, member/liquidity provider default scenarios and additional liquidity stress assumptions. It aimed to capture the systemic dimension of liquidity risk considering different capacities or functions of entities, that are relevant to the liquidity profile of a CCP, such as clearing members, liquidity or service providers. The exercise also benefited from the three common, internally consistent market stress scenarios that were calibrated and provided by the ESRB for this exercise covering a large number of risk factors across asset classes. The exercise analysed the levels of HHI concentration to liquidity providers and custodians, while the reverse credit stress test was extended to also explore the impact from shocks beyond the core scenarios. Finally, the enhanced validation process, which involved close cooperation between ESMA, the NCAs and CCPs, allowed greater transparency with the publication of CCPs' names for the more mature credit stress test component.

A number of significant improvements, both in terms of scope and methodology, were introduced in the third stress test exercise with the aim of further improving the robustness of the exercise. First, a concentration analysis was added in order to assess the impact of liquidation costs due to concentrated positions. As it has been observed in previous default events, the size and illiquidity of positions can cause final losses to largely exceed the mark-to-market losses that are solely explained by market moves. Whereas the credit component of the stress test applies a market shock to all positions regardless of their size, the concentration component modelled the cost of liquidating a large position in a short amount of time. Furthermore, the methodologies for credit and liquidity evolved with targeted improvements, including the stress valuation of collateral instead of relying on CCPs' haircuts and the introduction for the first time of a wrong-way risk adjustment.

The stress test exercises have provided supervisors, CCPs and market participants with insightful information on the activity of EU CCPs and their resilience to the scenarios examined. They have helped to identify potential vulnerabilities and, as a direct effect, have triggered follow-up actions leading to the improvement of CCPs' risk management frameworks. In that respect, they led to the adoption of more conservative market shocks and assumptions in the stress scenarios used by CCPs to size their resources. They have also strengthened their liquidity risk management frameworks, leading to increased available resources and to conservative amendments in collateral policies. Beyond the direct positive impact on CCPs' risk management frameworks, the stress test exercises have also made a significant contribution to raising CCPs/participants' awareness of specific risks and triggered dedicated reviews promoting supervisory convergence.

The stress test exercise has benefited through the years from significant methodological improvements, though of course – as with any exercise of this scale and type – it is always subject to limitations.

ESMA remains committed to the development of future CCP stress test methodology. Beyond improvements to address any residual risks from the

modelling of in-scope components, ESMA could cover other types of risks to which CCPs are exposed, and which were either not covered or only partially covered. For example, operational risks can challenge the resilience of CCPs and, in certain cases, could also be a source of systemic risk. Any system-wide implications from potential disruptions in service provision as a result of an operational risk event would need to be thoroughly mapped and analysed. A holistic integration of operational risk would require the identification of critical services, potential sources of operational risk and, finally, an analysis of resulting implications.

Moreover, environmental risks are rightfully at the top of the agenda of supervisors and institutions worldwide. Integrating environmental risks is a new frontier in supervisory stress testing. It needs to be forward looking, as the objective is to simulate potential events that could happen in the future and may not be present when looking at historical events. Environmental risks can translate into both operational and market risk events with potential credit and liquidity risk implications. In the context of CCP risk management, environmental risks that result in gradual changes to asset prices, measured in months or years, are not expected to challenge their resilience. Operational risk events, or sharp and severe market moves that could take place over a period of a few days, or the breakdown of historically established dependencies as a result of the realisation of environmental risks could challenge CCPs.

# Chapter 4 – The ECB and Eurosystem role in central counterparty oversight and colleges

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## 1 Context: Central banks' role in CCP oversight

Central counterparties (CCPs) have become a crucial part of the post-trade market infrastructure landscape, alongside other payment and clearing systems, even though their market share in individual market segments may vary for institutional and historical reasons, such as whether or not a clearing mandate is in place for specific products. For example, CCPs clear a range of financial market segments, including financial and commodity derivatives (both over-the-counter (OTC) and exchange traded), repo markets and currency derivatives – the latter to a much lower extent; though, despite still very low cleared volumes, there are some signs of growing interest within the industry. The CCPs' operational and financial resilience is key to withstanding the materialisation of financial risks, thereby preventing a shock originating from counterparty credit risk leading to broader contagion and systemic risk.

### 1.1 Central banks' interest in CCPs as post-trade FMIs, dates back many decades

Although CCPs became even more prominent after the clearing mandate on certain financial derivatives was introduced as part of the reforms enacted following the great financial crisis, CCPs had attracted some degree of interest from central banks for quite some time. Back in 1990, when the G10 central banks published a set of principles for cooperative oversight of cross-border and multi-currency netting and settlement schemes, also known as the “Lamfalussy Principles”<sup>2</sup>, they referred to “multilateral netting-by-novation schemes involving a central counterparty” and the importance of their proper risk management, as well as of users' and members' full understanding of the risks deriving from their participation in such arrangements.

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<sup>2</sup> [Committee on Interbank Netting Schemes of the Central Banks of the Group of Ten](#) (1990), *Principles for cooperative central bank oversight of cross-border and multi-currency netting and settlement schemes*, November.

## 1.2 Central banks as standard-setters for CCPs, alongside securities regulators

In the following decade, specific requirements for CCPs were developed and applied in financial markets around the world, often on the basis of the internationally agreed Recommendations for Central Counterparties, developed in 2004, in a joint effort by central banks and securities regulators under the aegis of the Committee on Payments and Settlement Systems (CPSS) – the precursor of the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO). The report on the Recommendations underlined the importance of CCPs for the respective mandates of securities regulators and central banks<sup>3</sup>.

The critical role of CCPs as risk managers and a pillar of the OTC derivative markets increased further following the 2009 G20 leaders Pittsburgh Declaration<sup>4</sup>, which, among other things, committed G20 countries to bring standardised OTC derivatives markets to CCPs. CCPs were set to become a systemic pillar of the global financial architecture in their own right, and this called for a parallel strengthening of the prudential and risk management requirements to which CCPs were subject at the time. It also called for enhanced cooperation among central banks and other regulators, supervisors and other relevant authorities with an interest in CCPs, and a specific recommendation (Recommendation E) was adopted to this effect. As a result of the abovementioned post-crisis reforms, in April 2012, the CPSS and IOSCO published the Principles for Financial Market Infrastructures (PFMIs)<sup>5</sup> which set out a strengthened set of requirements applied to various types of financial market infrastructures (FMIs), including CCPs.

## 1.3 Central banks' role in cooperative arrangements for CCPs supervision

In the European Union the necessary reforms regarding CCPs were implemented into law with the adoption of the European Market Infrastructure Regulation (EMIR) in 2012.<sup>6</sup> As explained in the Chapter on EMIR and EMIR2, with regard to CCPs, EMIR introduced, among other things, a new supervisory regime, mainly anchored around the powers attributed to the national competent authorities (NCAs) designated by EU Member States in whose jurisdiction the CCPs are established,

<sup>3</sup> As noted by CPSS and IOSCO (2004), "*Because of the potential for disruptions to securities and derivatives markets and to payment and settlement systems, securities regulators and central banks have a strong interest in CCP risk management*".

<sup>4</sup> See: G20 (2009), [Leaders' Statement](#), *The Pittsburgh Summit*. For an assessment of the progress achieved, see "Looking back at OTC derivative reforms – objectives, progress and gaps", *ECB Economic Bulletin*, Issue 8/2016, pp. 75-97.

<sup>5</sup> [Principles for Financial Market Infrastructures \(PFMIs\)](#). The PFMIs updated the previously recommended core principles for different types of FMIs, by raising minimum requirements, providing more detailed guidance and broadening the scope of the standards to cover new risk-management areas and new types of FMIs (e.g. trade repositories). They are part of the *FSB Key Standards for Sound Financial Systems* and broadly accepted by the international community as representing minimum requirements for good practice that countries are encouraged to meet or exceed.

<sup>6</sup> 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).

with the attribution of some further powers to the European Securities and Markets Authority (ESMA).<sup>7</sup> The new supervisory architecture also envisaged the establishment of supervisory colleges (EMIR colleges) for each CCP, including a wide set of relevant authorities, supervisors and, crucially (from the ECB's perspective), central banks.

## 2 The Eurosystem role as central bank of issue in colleges and the allocation of responsibilities within the Eurosystem

### 2.1 The concept of central bank of issue in the context of oversight

In acknowledgement of central banks' long-standing expertise in FMI oversight, various EU Member States designated their national central bank as the national competent authority for CCPs, in some cases together with other national regulators or securities markets supervisors (e.g. in Greece, France, Italy, the Netherlands, and Portugal)<sup>8</sup>, and/or entrusted members of the European System of Central Banks (ESCB) with oversight competences over CCPs (in some cases the NCB role of CCP supervisor encompasses that of overseer, and the NCB takes both a micro-supervisory and systemic risk perspective in carrying out its activities). Furthermore, irrespective of being an NCA, central banks of EU Member States whose currency is cleared by a CCP may participate in the EMIR college in their specific capacity as "central bank of issue" (CBI). The specificity of this role in comparison to the (traditional) central bank oversight is further explained in the next paragraph.

The concept of central bank of issue (as opposed to the domestic central bank) was not developed specifically in the context of CCPs, and actually can be traced back originally to international oversight discussions on payment systems.<sup>9</sup> The concept was used to acknowledge a central bank's specific and legitimate interest with regard to an FMI, located outside its own jurisdiction, which has the potential to impact the functioning of the financial market and raise risks to the stability of its currency. This may for instance be the case if the FMI handles a substantial share of payments or other assets denominated in the currency issued by the central bank; or if it presents significant interdependencies with FMIs overseen by the central bank

<sup>7</sup> ESMA's role includes proposing secondary regulation implementing EMIR (in the form of Regulatory Technical Standards (RTS)), and facilitating convergence of supervisory practices (including by publishing Guidelines to NCAs).

<sup>8</sup> Central banks have also been designated as NCA, pursuant to Article 21(1) of EMIR, in some euro area countries that do not have a CCP established in their territory (e.g. Belgium, Ireland, Slovakia). Other EU countries where the NCB was designated are the Czech Republic, Croatia, Lithuania and Hungary. See ESMA, *List of competent authorities designated for the purposes of Regulation (EU) No 648/2012 on OTC derivatives, central counterparties and trade repositories (EMIR)*.

<sup>9</sup> See for example the responsibilities for central banks in the Lamfalussy Report (1990), and the references to central interests in cross-border as well as cross-institutional cooperation included in the *Core Principles for systemically important payment systems* (2001), the *Recommendations for Securities Settlement Systems* (2001; in particular Recommendation 18) and those for Central counterparties (2004; in particular Recommendation 15), the report by CPSS (2005) *Central Bank oversight of payment and settlement systems*, and ultimately, the PFMI, in particular Responsibility E (2012).

(such interdependencies may arise from interoperable clearing or settlement arrangements, or due to FMIs having large common participants whose liquidity position might be impaired in case of stress in one of the FMIs). Typically, a central bank of issue is prominently (though not exclusively) focused on liquidity and settlement risk, given the direct relevance of such risks for financial stability and the conduct of monetary policy, as explained earlier.<sup>10</sup> The role of central bank of issue has gained specific legal recognition in the European Union: this caters for the need to include in the cooperative supervisory arrangements the foreign central banks whose currencies are cleared or settled in the Union (e.g. USD, JPY, CHF, etc.). Furthermore, there is need (compared to other jurisdictions) to involve the various EU central banks in their respective CBI capacity (because the Monetary Union – with a single currency issued by the Eurosystem – exists alongside national currencies issued by central banks of the EU Member States that have not adopted the euro). Additionally, the CBI role is explicitly recognised, and singled out from other roles that ESCB members may be entrusted with under national law, EMIR and other FMIs-related EU regulations, such as the Central Securities Depositories Regulation (CSD Regulation or CSDR) and the CCP Recovery and Resolution Regulation (see further details in related chapters of this book).

As a result of the coexistence of EU and national law (as well as regulatory/supervisory bodies) the central bank oversight and central bank of issue competences in Europe may be undertaken independently of one another. As explained in the Eurosystem oversight policy framework (2016), in most euro area Member States oversight of clearing and settlement systems is conducted by NCBs under national law, alongside supervision by securities regulators and banking supervisors; but the competencies and powers conferred on each NCB under such national laws differ.<sup>11</sup> This contrasts with the conduct of monetary policy which is a common function attributed to the Eurosystem (as central bank of issue for the euro), composed of the ECB and the euro area NCBs and governed by the ECB Governing Council. In carrying out its activities, and with the objective to maximise efficiency and effectiveness, the Eurosystem shares responsibilities in a way that enables it to benefit from its decentralised structure, while at the same time ensuring that these activities are coordinated and that its policy stance is consistently applied throughout the euro area. In line with this principle, the Eurosystem is represented in its central bank of issue capacity by euro area NCBs in the colleges of CCPs established in their respective Member State, and by the ECB in colleges of CCPs established outside the euro area). The ECB coordinates the common Eurosystem central bank of issue stance across EMIR colleges, in particular as regards the Eurosystem vote on opinions adopted by EMIR colleges.

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<sup>10</sup> See Responsibility E, para. 4.5.9. Payment and settlement arrangements (*italics emphasis added*): “An FMI’s payment and settlement arrangements and its related liquidity risk management procedures in any currency for which the FMI’s settlements are systemically important should be assessed against the principles by the authority or authorities with primary regulation, supervision, or oversight responsibility with respect to the FMI. When conducting these reviews, *the authority or authorities should consider the views of the central banks of issue. Central banks of issue may have an interest in an FMI’s payment and settlement arrangements and its related liquidity risk-management procedures because of their roles in implementing monetary policy and maintaining financial stability. (...)*”.

<sup>11</sup> See [here](#), p. 7.

## 2.2 Participation in EMIR colleges and issue of the single vote

The fact that multiple roles may be entrusted to the same institution is reflected in the composition of EMIR colleges. Under Article 18 of EMIR the same central bank can participate in a college in various capacities: as a CCP's competent authority (Article 18.2.b), as a CCP overseer or overseer of a CCP with interoperable arrangements (Article 18.2.g), as central bank of issue of the most relevant financial instruments cleared (Article 18.2.h) and, if applicable, as banking supervisor of the clearing members which are established in the three Member States with the largest contributions to the default fund of the CCP (Article 18.2.c)<sup>12</sup>. However, it is noted that because of the multiplicity of roles, the legislators felt the need to clarify in Recital (54) of EMIR that the college should vote in accordance with the general principle of each member having one vote, irrespective of the number of functions it performs in accordance with EMIR. This general principle had led to the interpretation<sup>13</sup> that where the ECB participated in the college as banking supervisor (as a result of the establishment of the Single Supervisory Mechanism<sup>14</sup>) as well as a member of the Eurosystem as central bank of issue (the ECB itself or an NCB), it would cast only one vote. However, with the recent entry into force of EMIR 2.2<sup>15</sup>, the EU legislator recognised that important differences exist between the supervisory and the central bank perspectives, and it is now explicitly stipulated in primary law (Article 19.3) that where the ECB is a member of the college as banking supervisor and as central bank of issue, it will have two votes.

### Box 1

#### The importance of CCPs for the conduct of monetary policy and the stability of the currency

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There are various reasons why central banks have a strong interest in CCPs from the perspective of the monetary function:

First, CCPs can generate risks for the smooth functioning of payment and settlement systems. If a CCP is not able to fulfil its obligations towards members in a timely manner, it transmits liquidity risk (involving cash but potentially also non-cash collateral) to its members, which in turn may become unable to honour their own other obligations – potentially generating gridlocks or settlement fails. The spill-over of risks can generate further contagion and crystallise into systemic risk, thus central banks as overseers of payment and settlement systems cannot ignore central counterparty clearing, even in those jurisdictions where statutory oversight or supervisory powers on CCPs are explicitly attributed to other competent authorities. Note that risks may also spill over in the opposite direction and a disturbance in the operation of payment and settlement systems can prevent payment or receipt of cash (or other collateral) to the CCP and its members, further exacerbating

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<sup>12</sup> Some NCBs may also be entrusted with additional roles under national law, and be allowed in the college (e.g. as supervisor/overseer of a CSD used by the CCP, or as supervisor of a trading venue served by the CCP).

<sup>13</sup> ESMA Opinion, ESMA/2015/838, 7 May 2015.

<sup>14</sup> Council Regulation (EU) No 1024/2013, of 15 October 2013 Conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions.

<sup>15</sup> Regulation (EU) 2019/2099 of the European Parliament and of the Council of 23 October 2019 amending Regulation (EU) No 648/2012 as regards the procedures and authorities involved for the authorisation of CCPs and requirements for the recognition of third-country CCPs.

the systemic implications of the initial payment system problem. The growth in the use of central bank money by a variety of other FMIs (ancillary systems) has put central bank-operated payment and settlement systems (such as TARGET2<sup>16</sup> or the TARGET2-Securities (T2S) settlement platform) at the centre of a web of payment and securities settlement flows, including from and to CCPs.<sup>17</sup> The smooth functioning of these systems is particularly important as they are used for the execution of monetary policy operations.

A second reason why CCPs matter to central banks, is that CCPs' margin and collateral requirements directly impact the liquidity needs of their clearing members – in particular banks (CCP-bank nexus)<sup>18</sup>. This impact on clearing member banks can in turn affect funding liquidity and collateral markets, in particular those of high-quality and liquid assets, such as sovereign bonds typically accepted as collateral by CCPs (and by central banks). Whether they clear securities, derivatives or other contracts, CCPs have thus the potential to affect the functioning of the money market – in particular the repo segment where banks adjust their liquidity positions. Furthermore, CCPs also act as major repo counterparties when reinvesting the large amounts of collateral they collect. Money markets are crucial for the execution of central bank market operations and to ensure the transmission of monetary policy feeds through to the rest of the financial market, and hence, ultimately, for the central bank's ability to ensure monetary and price stability. This is particularly important in the euro area, where CCPs clear 70% of repos.<sup>19</sup> There is a growing strand of research that investigates and documents the important role and impact of CCPs in repo markets, and how this affects the prevailing liquidity conditions as well as the ECB's balance sheet. The implications of haircut changes by CCPs on liquidity funding markets, particularly in the sovereign crisis of 2010-12, have attracted particular attention for their dramatic unfolding. For example, Amarkola et al. (2020) showed how, following protective measures adopted by CCPs, private repo market activity almost disappeared on certain sovereign collateral, as rate spreads and CCP haircuts increased – an impact that the authors acknowledged was mitigated by the countercyclical monetary policy of the European Central Bank.<sup>20</sup> Systemic risk in euro repo CCPs is discussed in Boissel et al. (2016).<sup>21</sup> Some authors show, however, how CCPs can also represent an element of stability in repo markets: Ebner et al. (2014), using transaction data from the German CCP Eurex for the period from 2006 to mid-2012, highlighted the resilience of the General

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<sup>16</sup> Twelve CCPs currently have accounts in TARGET2 as ancillary systems: CCP.A (Austria), Eurex Clearing and ECC (both Germany), BME Clearing (Spain), LCH.SA (France), AthexClear (Greece), CC&G (Italy), Ice Clear Nederland (the Netherlands), OMI Clear (Portugal), Nasdaq Clearing (Sweden), as well as ICE Clear Europe and LCH Ltd (both UK).

<sup>17</sup> On the relevance of CCPs for the Eurosystem mandate, see B. Coeuré (2019), "The case for cooperation: cross-border CCP supervision and the role of central banks". Introductory Remarks to the *Conference on CCP risk management*, organised by the Deutsche Bundesbank, the ECB and the Federal Reserve Bank of Chicago, Frankfurt am Main, 27 February 2019; <https://www.ecb.europa.eu/press/key/date/2019/html/ecb.sp190227~cf2acdb23d.en.html>.

<sup>18</sup> With reference to US denominated markets, Wenqian Huang, and Előd Takáts (2020) more recently analysed the CCP-bank nexus in relation to the recent COVID-19 market turbulence. The authors acknowledge that CCPs remained resilient (confirming the rationale of the last decade reforms) but note that their large margin calls prompted by price movements strained the liquidity positions of large dealer banks (while at the same time banks also hoarded liquid assets, possibly in anticipation of large margin calls, which exacerbated the liquidity squeeze). The authors call for central banks, when thinking about margining, to assess banks and CCPs jointly rather than in isolation. See "The CCP-bank nexus in the time of Covid-19", *BIS Bulletin* No.13.

<sup>19</sup> B. Coeuré (ibid.).

<sup>20</sup> Angela Amakola, Raphaël Douady, Jean-Paul Laurent, Francesco Molteni (2020), *Repurchase agreements and systemic risk in the European sovereign debt crises: the role of European clearing houses*; fhal-01479252f.

<sup>21</sup> C. Boissel, Derrien, F., Örs E., Derrien F., and Thesmar D. (2016), "Systemic risk in clearing houses: Evidence from the European repo market", *ESRB Working Paper*, Nr. 10, May.

Collateral Pooling (GCP) repo segment)<sup>22</sup> Mancini et al. (2015) used a similar dataset for the period from January 2006 until February 2013 and argued that anonymous trading via a CCP, safe collateral and the absence of an unwind mechanism in repo, are three of the conditions contributing to repo market resilience and they showed that the aggregate volume of CCP-based repos did not decline during crisis periods, but actually increased (in contrast to the other parts of the euro interbank repo market and repo markets in the United States).<sup>23</sup> There is also a (more direct) collateral nexus between central banks and CCPs: Corradin et al. (2017) observe that “A key determinant of the influence of central bank haircut schedules on collateral markets is how they interact with the haircut schedules set by CCPs and private repo markets. In fact, assets might be subject to central bank and CCPs haircuts and large differences between the two might lead to violations of the law of one price (...). Because of the differences in haircuts between the CCPs and the ECB proxies for the opportunity cost a bank faces with the choice of demanding liquidity in the refinancing operations of the Eurosystem and in the centrally cleared private repo markets, increases in the CCPs haircuts tend to reduce asset values, make refinancing more costly in the private repo markets (...) and induce banks to rely more on central bank liquidity”.<sup>24</sup> The authors note how CCP haircuts might also affect the central bank balance sheet in terms of collateral composition and banks' liquidity needs, and evaluate the extent to which the dramatic rise in haircuts on Italian sovereign bonds by LCH Clearent SA on 9 November 2011 had an impact on the Eurosystem collateral and liquidity balance sheet.

Finally, central banks also act as lender of last resort and may need to provide emergency liquidity to a solvent, but illiquid, CCP or to one of its members (to the extent that the latter fall under the scope of the related central bank provisions). A central bank needs to be able to assess the systemic relevance of the crisis faced by the CCP (including the existence of the conditions to be met for emergency liquidity provision, the implications of not providing emergency liquidity to the CCP and/or to its members, and the need to avoid moral hazard). Central bank (intraday) liquidity facilities may in some cases also be in place for routine use by CCPs. This can be done to facilitate settlement in payment systems, for example, to help address temporary liquidity needs due to asynchronous incoming and outgoing flows of variation margin, received from and paid to clearing members. For its assessments in the context of potential liquidity provision, a central bank needs to be knowledgeable about the CCP's risk profile, be comfortable with its risk management framework and understand the broader implications of the CCP's (mal)functioning for the financial market in the currency issued by the central bank.

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<sup>22</sup> André Ebner, Fecht, F. and Schultz, A. (2014), “How central is central counterparty clearing? A deep dive into a European repo market during the crisis”, *Deutsche Bundesbank Discussion Paper* Nr. 14/2016.

<sup>23</sup> Mancini, L., A. Ranaldo and J. Wrampelmeyer (2015) “The Euro Interbank Repo Market”, *Review of Financial Studies*, Vol. 29, Issue 7, 1747-1779.

<sup>24</sup> Corradin, Stefano, Hoerova, Marie; Heider, Florian (2017), “On collateral: Implications for financial stability and monetary policy”, *ECB Working Paper* 2107, November (2017), p. 32. For a detailed description of the impact of the French and Italian CCPs' haircuts on the Eurosystem collateral and liquidity balance sheet see in particular Box C, pp. 33-36.

## 3 The ECB experience so far, and what lies ahead

The experience of the Eurosystem as central bank of issue in EMIR colleges is certainly positive, as college discussions help foster a greater cooperation among member authorities, supporting information exchanges and supervisory data sharing, reciprocal learning and richness of perspectives.

One additional result achieved by EMIR, has been the greater transparency of derivatives markets which has resulted from the mandatory reporting of all derivatives transactions to trade repositories (TRs), with the ECB having access to those reports involving a link to the euro (e.g. executed by a euro area market participant, cleared and reported by a euro area CCP, denominated in euro or having a euro area derivative as the underlying asset). The ECB in the recent year has thus been able to carry out enhanced quantitative analytics and monitoring of derivatives clearing. Empirical analysis of TR data provides useful insight, including at aggregate or systemic level, such as monitoring margin developments, mapping interdependencies across CCPs due to common participants<sup>25</sup>, studying structural industry developments (e.g. client clearing<sup>26</sup>), or other internal analysis (e.g. assessing potential “cliff-edge” risks in euro clearing relating to Brexit) relevant to the central bank of issue mandate. This type of analysis can be further enriched by the wealth of transaction data on repos (including CCP cleared repos) starting to be reported to trade repositories under the Secured Financing Transactions Regulation<sup>27</sup>, to which the Eurosystem has access. The ECB, as central bank of issue representative, also contributed to the supervisory stress tests of EU CCPs, with a focus on liquidity risks and regularly attends meetings of the crisis management groups (CMGs) established for (third-country) CCPs of systemic relevance in more than one jurisdiction. Finally, the ECB contributes to international efforts and policy discussions under the aegis of CPMI and IOSCO, as well as of other global standard-setting bodies in relation to CCP topics (e.g. FSB).

### 3.1 The Eurosystem CBI role under EMIR2

Looking ahead, EMIR 2 has reformed the supervisory architecture in place for EU CCPs and third-country CCPs (TC CCPs). (For more details, in particular in relation to the tiering classification approach applying to the latter, see chapter on EMIR and EMIR2.) Under EMIR 2, the Eurosystem, as central bank of issue, has been entrusted with an expanded role and will be more closely associated with the

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<sup>25</sup> S. Rosati and F. Vacirca (2019), “Interdependencies in the euro area derivatives clearing network: a multilayer network approach”, *Journal of Network Theory in Finance*, Volume 5, Number 2, June.

<sup>26</sup> A. Kahros, T. Carraro, M. Gravanis, A. Pioli and F. Vacirca (2020), “Analysis of European Derivatives Client Clearing”, *Journal of Financial Market Infrastructure* (forthcoming). The work was also presented at the [17th Bank of Finland Payment and Settlement System Simulator Seminar](#).

<sup>27</sup> Regulation (EU) 2015/2365 of the European Parliament and the Council of 25 November 2015 on transparency of securities financing transactions and of reuse and amending Regulation (EU) No 648/2012. The reporting requirement covers: repurchase transactions; securities or commodities lending and securities or commodities borrowing; a buy-sell back transaction or sell-buy back transaction; and margin lending transactions.

supervision of EU CCPs and especially of TC CCPs clearing significant amounts of euro. The reform of the supervisory architecture involves:

1. The ECB represents the Eurosystem in the newly established ESMA CCP Supervisory Committee (the ECB is also invited as an observer to the meetings of the ESMA CCP Policy Committee), and has the chance to provide its views on discussions.
2. When an EMIR college prepares an opinion, the central bank of issue participating in the college may adopt recommendations (for the currency it issues) in relation to any shortcomings identified in the CCP risk management or to increase its resilience.
3. The ECB participates – with the other members of the ESCB – in the (also newly established) third-country CCP college.
4. As regards Tier 2 TC CCPs, the Eurosystem (like other central banks of issue) will be formally consulted with respect to decisions to be taken in certain areas that are particularly relevant for the central bank mandate, namely: margin requirements, liquidity risk controls, collateral requirements, settlement, and approval of interoperability arrangements with other CCPs.<sup>28</sup> The regulation specifies that the ESMA CCP Supervisory Committee shall take into due consideration the possible amendments proposed by the central bank of issue, provide explanations in writing to the central bank in case it decides to deviate from them, and also submit to the ESMA Board of Supervisors the amendments proposed by central banks of issue and its explanations for not taking them into account together with its draft decision.
5. With respect to Tier 2 TC CCPs, central banks of issue must expressly agree, in relation to clearing services in the currency it issues, to any ESMA recommendation to the European Commission that a particular CCP should not be recognised to provide certain clearing services or activities, because they are of such significant systemic importance.
6. With respect to Tier 2 TC CCPs, central banks of issue may request participation in possible ESMA investigations and on-site visits.<sup>29</sup>

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<sup>28</sup> Under EMIR 2, the central bank of issue may also impose requirements that TC CCPs must comply with at least one of the conditions for recognition by ESMA. These regard: (i) to submit any information which the central bank of issue may require upon its reasoned request, where that information has not otherwise been obtained by ESMA; (ii) to cooperate with the central bank of issue in the context of the assessment of the CCP's resilience to adverse market developments; (iii) to open or notify the intent to open, in accordance with relevant access criteria and requirements, an overnight deposit account with the central bank of issue; (iv) to comply with requirements, applied in exceptional situations by the central bank of issue, to address temporary systemic liquidity risks affecting the transmission of monetary policy or the smooth operation of payment systems, and relating to liquidity risk control, margin requirements, collateral, settlement arrangements or interoperability arrangements. To date, the Eurosystem has not availed itself of this possibility.

<sup>29</sup> Articles 25g(1) and 25h(1) of EMIR. Furthermore, the Eurosystem is to be consulted also on the initial classification of TC CCPs as Tier1 vs Tier2 (and its review every five years).

## 3.2 Conclusions and issues on the horizon

In conclusion, central banks have a strong interest in CCPs under their monetary mandate, due to the potential impact of CCPs on the smooth conduct of monetary policy and on the stability of the currency, and to the risks they may pose to financial stability. The role of the Eurosystem in CCP oversight and as central bank of issue of the euro, has grown substantially in scope and recognition in the last two decades, and is set to increase further as the EU proceeds to complete the post-crisis reforms – with the imminent implementation of the CCP Recovery and Resolution Regulation. As described in more detail in the chapter on “The EU framework for CCP recovery and resolution”, the Eurosystem will participate in the (yet to be established) EU CCP resolution colleges, which will conduct resolvability assessments and prepare resolution plans (the Regulation also adds to the competences attributed to the EMIR colleges, which will need to carry out the initial and periodic review of CCP recovery plans).

One area where more efforts are still warranted is the establishment of global colleges for CCPs that are systemic in more than one jurisdiction (so far established only for a few such CCPs), and the inclusion of the central bank of issue perspective in the supervisory CCP stress tests carried out across jurisdictions. This is critical in the light of the global nature of derivatives markets, their concentration at the level of large and internationally-active banks, and the substantial interdependencies linking CCPs across the globe via common clearing members. Bridging the different authorities’ and central banks’ perspectives on systemic risk is particularly needed, given that liquidity risk has been at the crossroads of many past crises.

# Chapter 5 – The EU framework for CCP recovery and resolution

Prepared by Corinna Freund<sup>1</sup>

## 1 Background and context

A policy priority following the global financial crisis in 2008/9 has been to reduce “too big to fail” risks in the financial sector. In November 2010, G20 Leaders endorsed a policy framework for reducing the moral hazard posed by systemically important financial institutions (SIFIs), i.e. major global banking groups. Arrangements to also ensure the continued provision of the critical functions of SIFIs in situations of extreme financial stress are crucial in this regard. The disorderly failure of SIFIs, given their size, complexity and systemic interconnectedness, would cause significant disruption to the wider financial system and economic activity. To pre-empt, in this context, potential reliance on public sector support, SIFIs were required to develop robust plans to recover from any threats to their viability. In addition, to prepare for the worst case where recovery may fail or may otherwise pose risks to financial stability, jurisdictions should also have in place arrangements to resolve SIFIs in an orderly manner.

From the beginning, it was recognised that the framework for reducing “too big to fail” risks may need to be extended beyond large banking groups. When issuing its Key Attributes of Effective Resolution Regimes for Financial Institutions, in October 2011, the Financial Stability Board (FSB) clarified that the Key Attributes also apply to financial market infrastructures (FMIs) in a manner appropriate to them and their critical role in financial markets.<sup>2</sup> Given the increased financial risk concentration in central counterparties (CCPs) following the introduction of mandatory central clearing, CCPs have received particular attention in this regard. Since 2012, the FSB has referred to effective recovery and resolution regimes for CCPs as one of the “four safeguards” for safe and efficient global clearing.<sup>3</sup>

Specific guidance on CCP recovery and resolution was provided in 2014, when the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) issued a joint report on the FMIs recovery<sup>4</sup> and the FSB adopted sector-specific guidance on the implementation of

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<sup>2</sup> Financial Stability Board (2011), [Key Attributes of Effective Resolution Regimes](#), October, Section 1.2.

<sup>3</sup> Financial Stability Board (2012), [Overview of Progress in the Implementation of the G20 Recommendations for Strengthening Financial Stability, Report of the Financial Stability Board to G20 Leaders](#), 19 June 2012, p.19.

<sup>4</sup> Committee on Payments and Market Infrastructures/Board of the International Organization of Securities Commissions (2014), [Recovery of financial market infrastructures](#), October.

the Key Attributes for FMIs<sup>5</sup>. In February 2015, G20 finance ministers and central bank governors asked the FSB to develop a coordinated work plan with CPMI, IOSCO and the Basel Committee on Banking Supervision (BCBS) to promote CCP resilience, recovery planning and resolvability.<sup>6</sup> As part of these efforts, in 2017 CPMI and IOSCO issued a revised version of the report on FMI recovery<sup>7</sup> and the FSB provided specific guidance on CCP resolution<sup>8</sup>.

In the EU, the European Commission put forward a proposal for Regulation on a framework for the recovery and resolution of central counterparties in November 2016. The Regulation was adopted in December 2020.<sup>9</sup> The new framework is required to be applied gradually, between one and two years after the date of entry into force of the regulation.

This chapter provides information on the main elements of the EU framework for CCP recovery and resolution and highlights potential challenges going forward.

## 2 Main elements of the EU Regulation on CCP recovery and resolution

### 2.1 The broader EU context

In developing the EU Regulation on CCP recovery and resolution, EU policymakers aimed to promote consistency with global standards. At the same time, it was necessary to develop a framework that would be sufficiently integrated and harmonised to support safe and efficient single market functioning. Important issues that needed to be addressed in this context included the interaction with the EU recovery and resolution framework for banks, the allocation of responsibility for supervising CCP recovery and for resolving CCPs, effective home-host cooperation, and an appropriate level of harmonisation of recovery and resolution tools to safeguard a level playing field in the EU.

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<sup>5</sup> Financial Stability Board (2014), [Key Attributes of Effective Resolution Regimes](#), October, Appendix II - Annex 1.

<sup>6</sup> Financial Stability Board (2015), *2015 CCP Work Plan*, see [here](#).

<sup>7</sup> Committee on Payments and Market Infrastructures/Board of the International Organization of Securities Commissions (2014), [Recovery of financial market infrastructures](#), October (Revised July 2017).

<sup>8</sup> Financial Stability Board (2017), [Guidance on Central Counterparty Resolution and Resolution Planning](#), 5 July.

<sup>9</sup> [Regulation \(EU\) 2021/23 of the European Parliament and of the Council of 16 December 2020 on a framework for the recovery and resolution of central counterparties](#).

### 2.1.1 Interaction with the recovery and resolution framework for banks

Work on an EU framework for CCP recovery and resolution was initiated at a time when the EU framework for bank recovery and resolution (the Bank Recovery and Resolution Directive – BRRD)<sup>10</sup> was already in place. Given that the policy objectives in terms of the recovery and resolution of banks and CCPs are aligned (i.e. ensuring continuity of their critical functions, minimising taxpayers' potential exposure to losses, and pre-empting any unnecessary destruction of value) – broad consistency of the respective regulatory frameworks appeared appealing. However, it was quickly recognised that significant sectoral adaptations would be needed, due to the different functions, business models and risks of banks and CCPs. While the specific tools and powers for CCP recovery and resolution were therefore tailored to the central clearing business<sup>11</sup>, some broader policy elements were indeed transposed from the BRRD, such as the framework for designating national resolution authorities, the general arrangements for interacting with third-country authorities, as well as the conditions for the use of government stabilisation tools as a last-resort, temporary funding option in resolution.

### 2.1.2 Allocation of responsibility

Any framework for the recovery and resolution of financial institutions needs to build on the underlying supervisory regime. Although safeguards for recovery and resolution must be designed to withstand more extreme circumstances than in the context of prudential supervision, recovery and resolution arrangements will only be effective and workable if aligned with the ongoing operational set-up and risk controls of the entity concerned. In addition, given the significant financial risks embedded in the potential recovery and resolution of a systemically important financial institution, and to pre-empt any potential distortion of incentives in the transition from ongoing crisis management to recovery and resolution, it is useful to align control and responsibility throughout the potential lifecycle of a financial institution.

Since 2012, the European Market Infrastructure Regulation (EMIR)<sup>12</sup> has provided the framework for CCP supervision in the EU. EMIR allocates primary supervisory responsibility to the home jurisdiction in which an EU CCP is licensed. This set-up was confirmed in the revised version of EMIR (EMIR 2)<sup>13</sup>, which entered into force in January 2020. Against this background, the EU Regulation on CCP recovery and resolution also allocates CCP recovery and resolution powers to the national level.

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<sup>10</sup> Directive 2014/59/EU. As part of the steps to integrate responsibilities for bank supervision and resolution in the Banking Union, the BRRD was subsequently complemented with the Single Resolution Mechanism (Regulation (EU) No 806/2014).

<sup>11</sup> This also implied that CCPs with a banking license were carved out from the BRRD.

<sup>12</sup> [Regulation \(EU\) No 648/2012](#).

<sup>13</sup> [Regulation \(EU\) 2019/2099](#).

### 2.1.3 Cross-border cooperation

Major CCPs often provide their services across national borders. Indeed, they often have clearing members and clients, and are systemically important across multiple jurisdictions. Against this background, it is necessary to complement home-country control for CCP supervision, recovery and resolution with safeguards for host countries to ensure that they receive adequate information on the risks posed by CCPs with systemic importance for their jurisdiction and that they are also able to mitigate those risks through involvement in home countries' ongoing work.

This is recognised in the Key Attributes, which provide for the establishment of international crisis management groups (CMGs) for CCPs that are systemically important in more than one jurisdiction. CMGs are designed to support home resolution authorities in developing a resolution plan that would be effective across the various jurisdictions in which a CCP is systemically important. At the same time, they serve to promote information sharing and preparedness across the relevant authorities. The relevant authorities that should be involved in resolution planning, include the CCP's home supervisor, the supervisors of major clearing members and central banks of issue of the main currencies cleared by a CCP.

In the EU, where CCPs may operate and provide services freely across the Single Market, further host-country safeguards are necessary. Therefore, both EMIR and the EU Regulation on CCP recovery and resolution rely on colleges of home and relevant host authorities for each EU CCP to ensure that key decisions are taken jointly. In the field of CCP supervision this includes the involvement of the "supervisory college" established under EMIR notably in decisions of the home supervisor concerning the initial authorisation of CCPs, subsequent extensions of services and major changes of CCPs' risk management frameworks. In the field of recovery and resolution, it relates to involvement of the "resolution college" established under the CCP Recovery and Resolution Regulation in decisions taken by the home resolution authority concerning the resolution plan for and the resolvability assessment of the CCP as well as to an involvement of the EMIR supervisory college in the assessment of the CCP's recovery plan.

### 2.1.4 A harmonised interface for the single financial market

Robust defences for CCP recovery and resolution come at a cost, both in terms of planning and cross-border coordination efforts and financial costs in an actual recovery or resolution event. Given that CCPs hold significant prefunded resources to ensure that they can withstand up to extreme but plausible stress events, the circumstances in which CCP recovery or resolution may be required would likely be exceptionally severe in terms of market volatility and asset dislocation. As result, CCPs may need to absorb large-scale losses, and the bulk of those – especially for default-related resolution scenarios – would fall upon clearing participants. Clearing participants would commit to respective payment obligations as part of agreeing to a CCP's rulebook. Against this background, stringent recovery and resolution requirements may affect the competitive position of a CCP.

Especially in the context of the Single Market, it is critical to ensure a level regulatory playing field. The EU CCP Recovery and Resolution Regulation is, therefore, not only generally more specific than global standards, but several key requirements are also subject to detailed harmonisation at the implementing level, based on regulatory technical standards developed by the European Securities and Markets Authority (ESMA).

## 2.2 EU safeguards for CCP recovery and resolution

### 2.2.1 Prevention and preparation

*Early intervention:* Additional supervisory powers are introduced to address situations in which a CCP infringes (or is likely to infringe in the near future) its prudential requirements under EMIR, poses a risk to financial stability in the EU or in one or more Member States, or where the home supervisor has determined that there are indications of an emerging crisis which could affect the CCP.

*Recovery planning:* CCPs are required to draw up recovery plans on how to handle any form of financial distress which would cause them to breach capital or prudential requirements (e.g. as prefunded resources may be exhausted).

The recovery plan should ensure a CCP's ability to maintain its financial and operational viability and the continued provision of critical functions without reliance on public sector financial support. Recovery plans need to be tested and updated at least annually and be embedded into the CCP's operating rules and governance arrangements. A CCP's recovery plan needs to be approved by the CCP's home supervisor who is required to conduct its review in coordination with the supervisory college established under EMIR.

*Resolution planning and resolvability assessment:* Home resolution authorities are required to draw up a resolution plan for the CCP, in coordination with the relevant EU authorities involved in the "resolution college" for the CCP and after consulting the CCP's home supervisor.

The resolution plan should set out the resolution authority's presumed strategy for addressing potential scenarios in which the failure of a CCP could occur, with the objective of maintaining the continuity of its critical functions without exposing taxpayers to loss. In this context, resolution authorities are specifically required to clearly set out the circumstances and different scenarios for using specific resolution tools and powers as well as to make prudent assumptions regarding the financial resources that would likely be available at the point of resolution. In addition, resolution authorities would need to take into account the impact of the implementation of the resolution plan on the CCP's clearing members and clients, any linked FMIs, financial markets (including trading venues) served by the CCP, as well as on the financial systems in other EU Member States.

Closely linked to the resolution planning process, home resolution authorities are also required to assess whether there are any feasible and credible options for resolving a CCP. If this is not found to be the case, the home resolution authority could require CCPs to take specific measures to remove or address the identified impediments. The resolvability assessment, as well as decisions concerning potential remedial actions, would also need to be taken in coordination with the resolution college and after consulting the CCP's home supervisor.

## 2.2.2 Recovery

Recovery should start when there is a significant deterioration of the CCP's financial situation or risk of breach of its capital and prudential requirements. A CCP would need to assess this based on specific qualitative and quantitative indicators that are aligned with its risk profile and must be included in its recovery plan. Where a CCP intends to activate its recovery plan, it must notify its home supervisor and clearly set out the identified problems and the suggested recovery path. The home supervisor could ask the CCP to refrain from taking certain recovery actions and may also consider whether there is a need for early supervisory intervention. In addition, the home supervisor would inform the supervisory college and the CCP's resolution authority of the situation.

During recovery, CCPs could deviate from their recovery plan, but the process for doing so should be fully transparent to clearing participants. In addition, any deviation must be justified and notified to the CCP's home supervisor without delay.

A specific feature of the EU framework for CCP recovery is a mandatory CCP financial contribution to loss absorption before an unfunded contribution of clearing members (e.g. in the form of a cash call or variation margin gains haircutting) may be called for. This contribution amounts to 10-25% of a CCP's capital requirements under EMIR<sup>14</sup>.

## 2.2.3 Resolution

Resolution authorities shall initiate resolution if all of the following conditions are met:

- the CCP is failing or is likely to fail;
- there is no reasonable prospect that any measure taken by the CCP, or early supervisory intervention, would prevent the failure of the CCP within a reasonable timeframe;
- resolution action is necessary in the public interest, to achieve the resolution objectives namely: to ensure the continuity of the CCP's critical functions, to avoid a significant adverse effect on financial stability in one or more EU Member States, and to protect public funds by minimising reliance on

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<sup>14</sup> This contribution comes on top of a CCP's "skin in the game" requirement for default management under EMIR.

extraordinary public financial support and the potential risk of losses for taxpayers.

The resolution authority may also take resolution action where it considers that the CCP recovery measures could prevent the CCP's failure but would cause significant adverse effects to the financial system in one or more EU Member States.

In carrying out CCP resolution, the resolution authority would need to observe various safeguards to ensure a fair and equitable treatment of all creditors and to pre-empt that creditors may be treated worse than under the theoretical alternative of insolvency proceedings. Against this background, the resolution authority would typically focus on enforcing outstanding obligations under the CCP rulebook, unless this would be deemed ineffective or may endanger financial stability.

The Regulation provides for a closed list of additional resolution tools, such as a cash call to clearing members that is reserved for resolution purposes, capped variation margin gains haircutting, and partial or full contract termination. EU resolution authorities may not take recourse to haircutting the initial margin posted by clearing participants.

Similar to what is available for EU bank resolution under the BRRD, CCP resolution authorities could also write-down CCP capital, sell the CCP or parts of its business, or create a bridge CCP. As a last resort, and under strict conditions, temporary public funding to achieve the resolution objectives may also be provided. To pre-empt moral hazard arising from a potential reliance on this tool, EU Member States are required to define in advance, comprehensive and credible arrangements for fully recouping any public funds provided.

In carrying out resolution, resolution authorities may deviate from the pre-agreed resolution plan. Respective flexibility is important in view of the very extreme circumstances in which CCP resolution may be required and that may be difficult to fully foresee in advance. However, resolution authorities would need to notify the resolution college prior to taking resolution action and to explain to the resolution college the reasons for any deviation from the resolution plan as soon as practicable after the resolution action.

### 3 Potential issues going forward

EU rules for CCP recovery and resolution are entirely new, and address largely uncharted territory. Around the world, actual events where a CCP has eroded its prefunded financial resources have been extremely rare, and occurred before global standards for FMI recovery and resolution were agreed. Against this background, it is challenging to ensure that conceptual assumptions and practical arrangements for CCP recovery and resolution events would be fully appropriate.

Taking the above into account, the general review of the Regulation on CCP recovery and resolution, planned for five years after its entry into force, will be important. This review is expected to reflect both the experiences gained in recovery

and resolution planning for EU CCPs as well as potential further developments in applicable international standards. In November 2020, the Chairs of the FSB, the CPMI, IOSCO and of the FSB Resolution Steering Group proposed to collaborate and conduct further work on CCP financial resources through their respective committees. During the course of 2021, they will assess and develop, as appropriate, international policy on the use, composition and amount of financial resources in recovery and resolution to further strengthen the resilience and resolvability of CCPs in default and non-default loss scenarios. This would include assessing whether any new types of prefunded resources would be necessary to enhance CCP resolvability.<sup>15</sup>

Further work may arise from the fact that there are significant central clearing interdependencies in the EU, given the shared reliance of EU CCPs on a limited number of global banks as clearing banks and service providers.<sup>16</sup> While central clearing interdependencies impact the risks implied in central clearing, during normal times or in extreme but plausible stress events, they could also give rise to particular concerns in the context of potential recovery or resolution events. Most notably, should the recovery or resolution of more than one EU CCP be required, this would imply that EU banking groups acting as major clearing members across EU CCPs may be asked to meet several large-scale, ad-hoc payment obligations at the same time. This could create significant financial stress for the clearing members concerned, who often also play an important role for the interbank market, payment systems and repo markets. As a result, wider systemic contagion risks may arise. It is therefore important to appropriately capture central clearing interdependencies in the context of CCP recovery and resolution planning. Otherwise, the extreme stress scenarios considered in the context of recovery and resolution planning may not be sufficiently severe, and the assumptions concerning available private sector funding may be too optimistic.

However, all global and EU arrangements for CCP supervision, recovery and resolution planning currently focus on CCPs as stand-alone entities. One reason for this is the fact that the ultimate responsibility for CCPs – including in terms of temporary fiscal support as a last resort funding option – falls upon the CCP's home country. However, when considering the basic allocation of funding responsibilities in central clearing, such residual fiscal risks for the home country are clearly outweighed by the financial risks for all jurisdictions in which major clearing members are located. Before any fiscal support may be considered, clearing members would have been asked to absorb the vast majority of any losses related to member default in ongoing risk management, recovery and resolution. Even if in the end, fiscal support may be provided, that would on a purely temporary basis. Public sector contributions would be recouped in line with clearing member obligations under their rulebooks; and CCP rulebooks are required to ensure comprehensive loss absorption of all default-related losses.

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<sup>15</sup> See [here](#).

<sup>16</sup> An in-depth analysis with regard to derivatives clearing in euro is provided by Rosati, Simonetta and Vacirca, Francesco (2019), "[Interdependencies in the euro area derivatives clearing network: a multi-layer network approach](#)", *ECB Working Paper Series*, No 2342, December.

To some extent, the EU Regulation for CCP recovery and resolution acknowledges the importance of the issue by requiring ESMA's annual Union-wide CCP stress tests to also take into account "where possible, the aggregate effect of CCP recovery and resolution arrangements on Union financial stability". Once experience with this set-up has been gained, EU authorities may wish to reassess (e.g. in the context of the general review of the Regulation) whether this arrangement delivers a sufficiently prudent approach to recovery and resolution planning in light of central clearing interdependencies.

Another element where further horizontal cooperation may be considered relates to the potential actual enactment of recovery or resolution measures. While home authorities' recovery and resolution plans need to be coordinated with relevant EU authorities, they are nevertheless non-binding in actual recovery and resolution events. As noted above, given the implausible nature of any recovery and resolution events, flexibility to deviate from any ex-ante plan is clearly important. However, considering the risk implications of recovery or resolution events for the concerned clearing members across the EU, this may be an area where more robust safeguards for EU host countries may be deemed necessary going forward, and a more integrated approach may potentially be considered.

# Chapter 6 – Trade repositories: reporting requirements, data quality initiatives and supervision

Prepared by Joanna Lednicka and David Buiatti<sup>1</sup>

## 1 Background

The European Market Infrastructure Regulation (EMIR)<sup>2</sup> was adopted in July 2012. Its objectives follow the G20 Leaders commitments, including increasing the transparency in the over the-counter (OTC derivatives markets by introducing reporting requirements. EMIR sets up an obligation to report detailed information on conclusion, modification or termination of any derivative contract to trade repositories (TRs). In turn, the TRs are required to make this information available to authorities and to publish aggregate positions by class of derivatives. The European Securities and Markets Authority (ESMA) is responsible for the registration and supervision of TRs.<sup>3</sup>

Article 9 of EMIR mandated ESMA to draft regulatory and implementing technical standards (RTS/ITS) specifying detailed requirements with regard to reporting, including the reportable details, formats and frequency of the reports. The regulatory and implementing technical standards were adopted on 19 December 2012, becoming Regulation No 148/2013 and Regulation No 1247/2012, respectively. The reporting by counterparties to trade repositories commenced on 12 February 2014.

## 2 Current framework

The TRs landscape in Europe has experienced important evolutions since the entry into force of EMIR reporting obligations in 2014.

Brexit has driven a reshape of the industry in the EU. New TRs were registered in preparation for Brexit and at the end of the transition period the registrations of the UK based TRs were withdrawn. As a result, there are currently four registered trade repositories in the EU.

Since EMIR reporting started back in 2014, the industry has collected a total of more than 100 billion derivatives reports. During the third quarter of 2020 (i.e. August-October 2020), there were on average more than 80 million trade reports submitted each day to TRs. These reports contain up to 129 fields populated with information

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<sup>1</sup> Joanna Lednicka is a Policy Officer at ESMA and David Buiatti is a Senior Policy Officer at ESMA.

<sup>2</sup> European Commission, Derivatives/EMIR, available [here](#).

<sup>3</sup> *ibid.*

on the constituents of a derivative transaction, such as counterparty information, type of product, maturity, underlying instrument(s), notional, valuation and collateral updates as well as other lifecycle events that can occur from inception to maturity.

On average, there are more than 160,000 counterparties regularly reporting to TRs.

There are more than 50 EU regulatory authorities that have access to at least one TR as of October 2020. They include national competent authorities (NCAs), national central banks, the European Systemic Risk Board (ESRB), the European Central Bank (ECB), the European Insurance and Occupational Pensions Authority (EIOPA), the Agency for the Coordination of Energy Regulators (ACER) and ESMA.

In 2016, ESMA developed TRACE, an IT system that allows NCAs and other authorities to have a single point of access to the data stored by TRs under EMIR. As of October 2020, the TRACE infrastructure facilitated data access for 37 authorities through a single platform.

## 3 Reporting requirements

### 3.1 Standardisation

In order for the users to aggregate, analyse and use efficiently the data, it is indispensable that the data are well structured. In particular, the same information should always be reported in the same way (e.g. euro currency to be reported as “EUR” rather than “euro” or “€”). The consistency of reporting under EMIR is achieved by clear and detailed rules specifying the format of information to be reported and, where possible, reliance on the ISO standards. Under the current technical standards counterparties are already required to report (in line with ISO standards) the following information: dates and timestamps (ISO 8601), currencies (ISO 4217), legal entities involved in the derivative (ISO 17442), countries (ISO 3166), venue of execution (ISO 10383), identification of instruments (ISO 6166) and classification of instruments (ISO 10692).

Furthermore, the TRs are currently expected to provide the reported information to authorities in XML format in accordance with ISO 20022 methodology. ISO 20022 is a standard methodology for the development of financial messages, comprising a dictionary of business processes and concepts used in financial communications (the ISO 20022 Data Dictionary), a set of modelling rules to build logical messages (that are syntax-independent) as well as rules allowing for converting the message models into XML and ASN.1 schemas. Provision of data by TRs in the same standardised schema has significantly facilitated aggregation and analysis of data by authorities.

## 3.2 Automation

In its recent Final Report on the revised technical standards following EMIR Refit<sup>4</sup>, ESMA proposed the use of ISO 20022 not only for the communication between the TRs and the authorities, but also for reporting from the counterparties to the TRs. This requirement will address the problem of introducing inconsistencies at the very beginning of the reporting chain, due to discrepancies in TRs' implementation of the reporting rules; which may be reflected, among other things, in the use of different report structures or different data element names.

When implemented, this requirement will make ISO 20022 an end-to-end solution for EMIR reporting and will enable full harmonisation along the reporting chain – enhancing data quality and consistency. Common XML schemas for reporting will also allow a harmonised set of data validation rules to be defined at schema level, thus decreasing rejection rates and enabling better processing. Finally, the reporting from counterparties to TRs and from the TRs to NCAs will be made in the same ISO 20022 XML schema, which will facilitate further automation of the reporting processes.

## 3.3 Global harmonisation

The global harmonisation of reporting of OTC derivatives data elements is one of the key points in accomplishing the goals of the global reforms conducted after the 2008 financial crisis. The CPMI-IOSCO Harmonisation Group has worked since November 2014 on guidance regarding the definition, format and usage of data elements reported to TRs, including the unique transaction identifier (UTI), the unique product identifier (UPI) and other critical data elements (CDEs). These crucial data elements including UTI, UPI and many of the CDEs, have been implemented in EMIR<sup>5</sup> and the respective requirements were further specified in the Final Report on the revised technical standards following EMIR Refit<sup>6</sup> to ensure better alignment with the global guidance.

## 4 Data quality work

The quality of data reported under EMIR is pivotal for the authorities' abilities to monitor the systemic risk in the derivatives market. ESMA applies varied measures and undertakes numerous initiatives to ensure high quality data. This section provides an overview of two of these activities, notably EMIR validation rules and the Data Quality Action Plan.

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<sup>4</sup> See [here](#).

<sup>5</sup> Commission Delegated Regulation (EU) 2017/104, available [here](#).

<sup>6</sup> See [here](#).

## 4.1 Validation rules (hard checks)

Automated validations are the most basic – yet very efficient – measure to control the quality of data reported by the counterparties. While there are limits to the verifications that can be performed in that way, well-designed validations can filter out the bulk of incorrect reports.

Given the EMIR setup under which counterparties report to the TRs, it is the task of the TR to perform the validations. ESMA designs the validation rules, where relevant after consultation with market participants<sup>7</sup> and/or TRs. The validation rules are published on the ESMA website and must be uniformly applied by all TRs.

In the first year of reporting under EMIR (2014), ESMA published a first set of the validations (Level 1) that was limited only to the completeness checks, prescribing whether or not each reporting field could be left blank or reported as “not available”. The following year, ESMA extended the validations to cover more detailed verifications of the correct format and content of the reportable fields (Level 2 validations).

Based on the lessons learnt, ESMA prepared a comprehensive set of validations (including completeness, format and content checks) in advance of the start of reporting under the revised technical standards on 1 November 2017. The rules for the verification of completeness are defined for each combination of the reportable field, action type and level of the derivative, detailing, among other things, the scenarios under which conditionally mandatory fields must be populated. Similarly, the format and content validations were considerably expanded.

Reporting entities receive feedback messages from the TRs informing them whether the report has been accepted or rejected, which enables the swift identification of reporting problems.

While the validations in themselves are not sufficient to ensure correct reporting, they are an important first line of defence.

## 4.2 Data Quality Action Plan

The Data Quality Action Plan (DQAP) is a major project, launched jointly by NCAs and ESMA in September 2014, to improve the quality and usability of data reported to and by TRs. The DQAP sets out the specific targeted objectives for both NCAs and ESMA. Given the supervisory framework under EMIR, where ESMA supervises the TRs and the NCAs supervise the entities with reporting obligations, only a common initiative can result in a successful project. The objectives are set on a yearly basis and each year ESMA's Board of Supervisors is informed about the execution of the actions that were agreed for the given year.

In line with the priorities set out in the DQAP, ESMA focuses its direct supervision work primarily in the areas of: (i) enhancement of the revalidation process for data

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<sup>7</sup> For example, via a Consultative Working Group.

received and distributed by the TRs, (ii) development of automated process to assess pairing and matching rates for reconciliation, (iii) assessment of the implementation of the guidelines on portability, (iv) development of a standardised process to assess access filtering for authorities, (v) monitoring of the implementation of additional reports (e.g. position calculation), and (vi) enhancement of the information exchange with data users by increased presence in relevant fora.

With regard to the supervision of counterparty reporting to TRs, DQAP sets out a common process and objectives for the national supervisors, and thus is one of the key supervisory convergence projects in the area of EMIR data quality. The NCAs undertake a Data Quality Review (DQR) each year, which is a quantitative assessment of data reported by a sample of counterparties in each jurisdiction in accordance with a commonly agreed methodology. Among other things, the methodology covers harmonised criteria for the selection of counterparties for the review, as well as a comprehensive set of data quality tests covering data completeness, accuracy, consistency, reconciliation and corrections of rejected reports. Where the results of the tests are not satisfactory, NCAs follow up with the selected entities to examine the problems and verify their resolution.

On top of the direct impact on quality of reporting of selected counterparties, DQR allows NCAs to compare the specific data quality indicators computed for their supervised entities with those of the counterparties based in other jurisdictions. Furthermore, it allows cross-border issues to be identified, which sometimes point to the need for more comprehensive common guidance.

It is worth noting that DQR is a flexible and dynamic exercise. The methodology for the DQR is reviewed and upgraded each year based on the results of the previous iteration and inputs from data users. For example, some of the data quality issues which were identified in the past by ECB and ESRB and brought to ESMA's attention, were used as inputs for the design and prioritisation of the specific data quality tests included in the DQR.

The level of engagement of the NCAs, in terms of the number of authorities participating in the DQR exercise, is continuously increasing. In 2019, 22 NCAs participated in the exercise (as compared to 14 NCAs in the first iteration of the DQR in 2015).

## 5 Supervision of the TRs

ESMA has adopted a data-driven, risk-based supervisory approach, with the main objective of enhancing the quality of data made available by TRs to authorities.

Every year ESMA carries out a risk assessment and identifies areas of focus for specific TRs and/or the industry at large. In addition to data quality, other areas of focus of ESMA' supervision are related to information security, operational risk and business continuity, IT processes and system reliability, adequacy of human resources, etc.

Over the past few years, ESMA has assessed and addressed a wide variety of data quality issues through supervisory actions in line with their importance, including, matters related to access to current and historical data, various type of errors in regulatory reports due to incorrect XML schema data validation, outliers caused by misreporting, filtering errors, issues with trade reconciliation, etc.

One of the key tools developed by ESMA to improve data quality is the NCA Framework. Since 2016, ESMA has maintained a data quality log, where users of EMIR data can report data quality issues. The objective is to enhance the effective use of data and prioritise data quality issues accordingly.

This standardised process prevents the replication of effort from several users of EMIR data that may try to resolve similar data quality issues. The data log also provides clarity to the EMIR data users as to why certain issues are getting priority. ESMA assesses and prioritises reported issues, and subsequently communicates the list of prioritised issues to NCAs and other data users, to allow for increased transparency of all outstanding issues.

The ECB has been a key contributor to the NCA Framework. The regular interaction between the ECB, the TRs and ESMA resulted in the identification and resolution of several deficiencies in the data set managed by TRs and contributed to the enhancement of the quality of data made available by TRs to the authorities as a whole.

## 6 Use of data

EMIR data has emerged as one of the most important datasets relating to financial markets in the Union. Since 2014, EMIR data has been used for multiple purposes. Data quality has also increased over time – thanks to the extensive use of data. Starting from the most immediate, these uses have been: (i) the supervision of compliance with the reporting obligation, (ii) the calculation of the classes of derivatives subject to the clearing obligation under EMIR, (iii) the calculation of those classes of derivatives subject to the trading obligation under the Markets in Financial Instruments Regulation (MiFIR), (iv) the assessment of non-financial counterparty (NFC) activity, (v) corroboration of decisions relating to the NCAs' exemptions relating to position limits for commodity derivatives under MiFIR, (vi) monitoring of the progress of implementation of the G20 reforms, and (vii) market monitoring in the context of Brexit and the COVID-19 pandemic.

Finally, since 2018, ESMA has produced an Annual Statistical Report (ASR)<sup>8</sup>. The ASR includes a detailed assessment of the market trends and market structure, and studies the evolution of a wide array of indicators.

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<sup>8</sup> See [here](#).

## 7 Looking forward

### 7.1 EMIR Refit

The next big milestone for EMIR reporting will be the implementation of the revised technical standards, which will adapt the reporting to changes stemming from EMIR Refit, align the EU requirements with the global guidance, fully harmonise the formats of reports in line with ISO 20022 methodology as well as address some other deficiencies identified by the users of EMIR data.

Taking into account the usual legislative process and the necessary implementation period (18 months in ESMA's proposal), it is expected that the reporting in line with the revised standards will commence in the first half of 2023. To assist market participants with implementation, well in advance of that date, ESMA is planning to publish the new validation rules, the xml schemas for reporting as well as comprehensive guidelines covering the most relevant reporting scenarios.

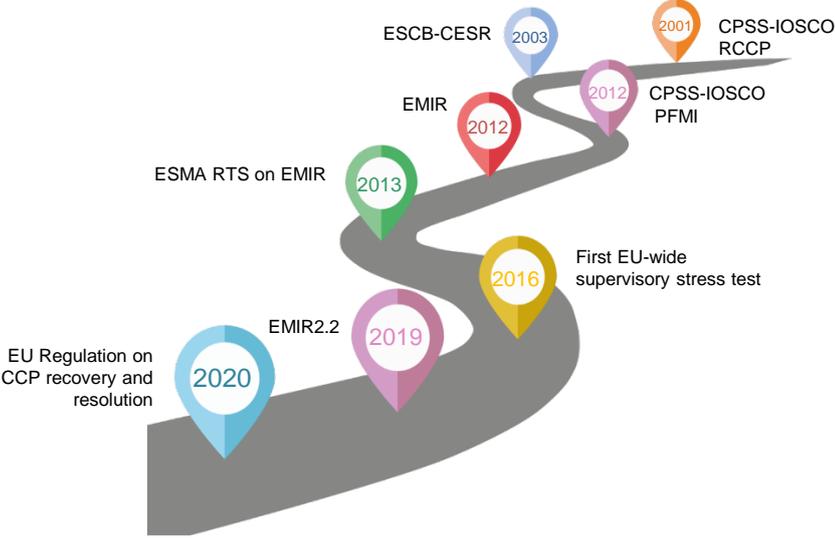
### 7.2 Securities Financing Transactions Regulation (SFTR)

While EMIR is the first and therefore most mature reporting framework for reporting to TRs, it is worth mentioning the ongoing work on implementation of another regulation involving the reporting to the TRs, notably the Securities Financing Transactions Regulation (SFTR).

SFTs are transactions where securities are used to borrow cash (or other higher investment-grade securities) or vice versa – this includes repurchase transactions, securities lending, sell/buy-back and margin lending transactions. SFTR aims at enhancing the transparency of shadow banking activities by requiring both financial and non-financial market participants to report details of their SFTs, including the parties involved in the transaction, key terms of the loan, collateral components, re-use of the collateral as well as margins for cleared SFTs.

The definition of the SFTR technical standards between 2015 and 2017, was a successful initiative carried out jointly by ESMA and the ECB, who led the identification of the relevant data points to be reported by market participants and the set-up of the applicable data quality procedures by TRs to facilitate the implementation of the Financial Stability Board's initiatives on shadow banking in the Union. Leveraging on its experience with the implementation of EMIR, ESMA has published comprehensive documentation ahead of the reporting start date to assist market participants in the implementation of SFTR requirements, including a comprehensive set of Guidelines on Reporting under SFTR, as well as technical instructions, such as ISO 20022 XML schemas and validation rules. Furthermore, ESMA is putting in place a framework for monitoring and enhancement of the quality of data reported under SFTR.

# Road map for CCP regulation



## Part 8

### Looking forward: the challenges ahead

# Chapter 1 – The future of central bank money: digital currencies?

Prepared by Ulrich Bindseil<sup>12</sup>

## 1 Introduction: Trends in retail payments and the ECB's retail payments strategy

Digital innovation in payments enables consumers and merchants to interact in easier, faster and cheaper ways. For decades, the private sector has progressed in this field, while the format of central bank money available to the general public has remained unchanged – in the form of paper banknotes. Two major trends have driven the digitalisation of retail payments. First, the digital revolution is transforming social interaction in fundamental ways. We use the internet constantly via our laptops and mobile phones; we consume more and more via e-commerce; we interact through social media and instant messaging applications. We have changed the way we communicate privately and at work, and how we consume. The COVID-19 pandemic has accelerated this trend. According to the ECB's 2020 payments survey, cash is still the most frequent way of making retail payments in the euro area, with cash payments accounting for 73% in 2019. But in value terms, digital payments have overtaken cash payments in 2019. And through extrapolation of the current trends, it is not difficult to predict for the euro area a growing predominance of electronic payments, as has already been the case elsewhere.

A second major trend is the global scale of competition in digital payments. Payments are subject to strong network effects: the more users a payment system or solution (or a set of fully interoperable solutions) has, the more attractive it becomes to new users. Scale matters – this inevitably leads to just a few service providers gaining market power and dominating the payments market. For example, Visa, MasterCard, and PayPal have attracted a growing share of European consumers – obviously because of their attractive product offering. In China, in the last decade payments have shifted from cash to mobile payments. These are controlled by two large private firms which are also looking to expand abroad. Market power provides room for non-competitive price setting and rent extraction. Regulation might partially address this. However, regulation does tend to lag behind, can be only partially effective, and may have side effects.

Europe has underperformed in recent years in this competition. Ten European countries still have domestic card schemes that do not accept cards from other Member States, despite major efforts to integrate payment networks in Europe. The

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<sup>2</sup> I would like to thank Gemma Fry, Gergely Koczan, Andrea Pinna, and Nacho Terol for helpful comments. All remaining errors are mine.

lack of payments integration in the euro area has helped foreign providers (or subsidiaries of foreign parent companies) to take the lead. While openness to global competition is crucial to foster innovation, excessive dependency on few foreign private or public digital means of payment and technologies could lead to rent extraction from European citizens and merchants, and strategic dependence. The evolving global context, with an observed deterioration in international relations, increasing protectionism, economic sanctioning, rapid technological progress, and the emergence of BigTech companies entering payments with unprecedented financial power and global reach, have increased the potential risks to payments, monetary, and potentially political sovereignty.

It is in this context that the ECB presented a revised retail payments strategy in November 2019 (see Coeuré, 2019), providing a vision of how the European private sector could fill the gaps in the European payments ecosystem. The European Commission's "Retail payments strategy for the EU", published in October 2020, complements the ECB's strategy by setting the stage for European legislation to contribute to shared objectives.

One key element of the ECB's strategy is the fast deployment of instant payments, which allow households and businesses to access their incoming funds immediately, eliminating credit risks for both payer and payee, and removing the need for an intermediary to take this risk temporarily. While standardised instant payments in the euro area were kick-started with the launch of the SEPA INST scheme in 2018, the Eurosystem introduced in 2019 its own platform for the continuous settlement of instant payments (TIPS). In order to make instant payments available to everyone in Europe, the ECB has recently taken important steps to ensure pan-European instant payments by the end of 2021 via TIPS (see the ECB press release of 24 July 2020). Moreover, the ECB supports private initiatives that seek a pan-European payment solution at the point of interaction (POI) which fulfils the criteria of the ECB's retail payment strategy. Indeed, such a payment solution, which relies on instant payments (like those that already exist in the Netherlands and Spain), would significantly boost the role of instant payments. The new European Payments Initiative launched by 16 European banks is a promising example (see the ECB press release of 2 July 2020).

Furthermore, the ECB has recently launched its Cash 2030 strategy to ensure that banknotes remain widely available and accepted as a competitive, reliable payment instrument and store of value that can be owned and used directly by all consumers (see the ECB press release of 2 December 2020). Indeed, banknotes have some advantages that electronic means of payment can never match, such as non-vulnerability to cyber attacks and power and technical failures. They also have the highest degree of privacy of all forms of payment. Even in the remote future, the advantages of cash will remain.

Last but not least – and this is the main subject of this chapter – the Eurosystem has launched work on a digital euro which would make digital central bank money accessible to everyone (ECB, 2020). It would provide access to a simple, costless, risk-free and trusted digital means of payment that is accepted throughout the euro area. The possible issuance of a digital euro alongside cash would be driven by the

same objectives as the entire ECB retail payment strategy: responding to evolving consumer preferences, fostering a competitive payments market and preserving European autonomy. A digital euro would both shape and promote the digitalisation of payments, in turn supporting the digitalisation and modernisation of the European economy. It could also increase privacy in digital payments thanks to the involvement of the central bank, which – unlike private suppliers of payment services – has no commercial interests related to consumer data.

## 2 A short history of forms and access to central bank money in Europe

Before discussing the future of central bank money in Europe, this section briefly looks back at its early history. European central banks have traditionally issued two main forms of liabilities: Deposits and banknotes. As reviewed in Roberds and Velde (2014), Ugolini (2017) and Bindseil (2019), for example, the first public banks issuing means of payment, i.e. the earliest central banks, did so in the form of deposits, and not in the form of banknotes. Before the Stockholm Banco tested the issuance of modern banknotes in 1661, there had been at least six early public central banks that successfully issued giro deposits and held fractional reserves, namely in Barcelona (1401), Genoa (1407), Naples (1580s), Venice (1587/1618), Amsterdam (1609) and Hamburg (1619). These public banks offered the possibility to open deposit accounts, in principle to everyone. In this sense they granted universal access to central bank liabilities (just as banknotes do now, and a digital euro would in the future). However, in the absence of electronic remote access, reach was limited to those who could come to the bank to undertake their transactions in person. For example, the Taula de Canvi of Barcelona would have had 1,460 depositors in the year 1433, while the Bank of Amsterdam had more than 2,000 depositors between 1650 and 1790, with a peak close to 3,000 in the first decades of the 18th century (Roberds and Velde, 2014). Most depositors were merchants and other wealthy businessmen, officials and families, including some who specialised in financial intermediation services. Governments also received and made payments via their accounts with public banks. The Giro function attached to these deposits, i.e. their use for credit transfers amongst depositors, made them genuine early central bank money.

Nevertheless, banknotes constituted a more universally accessible form of central bank liabilities as they were by definition transferable and “to the bearer”, meaning that everyone could receive them as means of payment, and could further use them to make payments to others – without any further registration or device needed. Banknotes were first issued by the Stockholm Banco in 1661-64, and then again by the Bank of England (founded in 1694) and the Bank of Scotland (founded in 1695). The Bank of Scotland would have been the first central bank to issue low-denomination banknotes almost from the beginning. These were also suitable for retail payments and thereby effectively granted universal access to central bank money to less wealthy individuals as well. It is noteworthy that deposits were not only the original form of central bank money, but that for a long time, the feeling was

occasionally expressed that banknotes might not be the ultimate form of central bank money either, but only a temporary one, that would be replaced again one day by deposits, which were seen as ultimately superior. For example, in the visionary words of Ulens (1908, 5):

*“No-one is questioning today the advantages of fiduciary money; the advantages of replacing metallic money with it are universally accepted. That fiduciary money takes the form of banknotes... is far from being the last word of progress. Much more perfect will be the mechanism of exchange based on current account deposits. ... But we are not yet there. ... The love of gold for its own sake has been replaced by the love of the banknote for its own sake.”*

The restriction of access to central bank deposits, to commercial banks only (besides public deposits and access to “ancillary systems”, such as major market infrastructures and privately run automated clearing houses) only emerged around 70 years ago (and some central banks still granted access to individuals until rather recently, although the importance of these accounts remained very limited). In this sense, it could be argued that introducing a retail central bank digital currency (CBDC) could mean returning to the roots of central banking, both in the form of a (more or less) account-based form of money, and in terms of restoring universal access to such accounts.

Another historical observation in the context of CBDC relates to the dematerialisation of other paper based financial instruments, such as promissory notes, bills of exchange and securities. While in the 19th century all of these were mostly paper-based, some forms of book-entry system alternatives were used sporadically for some securities. However, a trend towards systematic dematerialisation for securities started in the early 1960s, with first an immobilisation of paper securities in a central location, recording changes of ownership with bookkeeping entries, and second a true “dematerialisation” in two further steps, first by replacing a pile of numbered immobilised securities with one single deed, and eventually also discontinuing the existence of a single paper copy. Also in the US, full dematerialisation was achieved only over the last few decades (e.g. DTCC, 2012, “Strengthening the U.S. Financial Markets - A proposal to fully dematerialize physical securities, eliminating the costs and risks they incur”, A White Paper to the Industry). Similar developments have applied to bills of exchange and promissory notes, in which full dematerialisation has also been a long-lasting, and partially still ongoing, process (although it has now largely been achieved).

In view of the clear trend towards the dematerialisation of all paper-based financial instruments over the last 50 years, it is almost surprising that the dematerialisation of central bank issued banknotes only started to become a big topic in 2016. This being said, paper-based banknotes will retain an advantage in three fields: independence from electronic devices and networks, and thus from technical and power failures and cyber-attacks; inclusiveness, as banknote usage does not require any device nor access right to an electronic platform; and privacy of payments. These advantages will not disappear, and they do not seem to be similarly relevant to the above-mentioned, other formerly paper-based financial instruments.

### 3 The ECB's October 2020 report on a digital euro

On 2 October 2020 the ECB published its first report on a possible ECB-issued CBDC, called the digital euro, “for use in retail transactions available to the general public – that is, including citizens and non-bank firms – rather than only being available to traditional participants (typically banks) in the large-value payment system managed by the central bank” (ECB, 2020, 6). The report justifies the work on a digital euro, based on three arguments in particular:

**Digitalisation of payments:** The digitalisation of the economy and technological innovations are influencing consumer preferences for payment services and fuelling interest in the possible issuance of a digital euro. Beyond consumers, issuing a digital euro may be a way to foster the digitalisation of the economy, supporting the development of innovative European solutions in all kinds of industries. It could also satisfy the needs of the market as regards the programmability of payments.

**Declining usability of cash:** The report notes that the public perception of cash relative to electronic payments is changing. Cash remains the dominant means of payment in the euro area, but its use is declining, and the change of preferences might accelerate unexpectedly. If cash becomes unusable, e.g. because its acceptance by merchants cannot be enforced, as is already the case in e-commerce, then consumers and firms would become fully dependent on private payment solutions. However, the payment industry is a network industry in which typically a few dominant players gain significant market power, which they will try to exploit at the expense of consumers and merchants. Regulation is an important, but typically imperfect means of addressing market power and the related rent-seeking. Preserving central bank money as an attractive alternative solution for consumers and firms in a digital age is therefore a way to contain market power and rent extraction by dominant private providers.

**Payment, monetary and political sovereignty:** Payment services providers controlled from outside the euro area have achieved a dominant position and market power in the euro area. Moreover, new private actors, including large technology firms, are developing payment solutions not denominated in euro (such as some global “stablecoins”) that could achieve a global footprint and become widely used for European retail payments. Such developments would be one way to foster innovation, by relying on technologies that have not yet been leveraged by existing payment solutions, but could also threaten European financial, economic and, ultimately, political sovereignty. Wide acceptance of a means of payment or store of value not denominated in euro might also impair the transmission of monetary policy and financial stability in the euro area. This would also apply to CBDC issued by foreign central banks, which could potentially be made available to European citizens, leading to currency substitution. As noted in the previous point, successful firms in the payment industry tend to have market power and thereby the ability to generate profits through setting prices above the social welfare optimum.

The report also discusses the possible side effects of a digital euro that would need to be fully understood and mitigated through its functional design (Section 3), provides an initial review of the legal aspects of issuing a digital euro (Section 4),

and reviews functional and technical design issues (sections 5 and 6, respectively), without drawing any definitive conclusions as to the latter two. Regarding functional requirements, the report suggests the following:

**Access model:** Users could in theory access the digital euro either directly or through supervised intermediaries. If users have direct access, the central bank would however need to provide end user-facing services, such as customer identification and support. This would be inefficient and would not be necessary if users accessed the digital euro indirectly, i.e. through intermediaries providing such services. An intermediated access model is therefore preferable.

**Privacy requirements:** Users' privacy can in principle be protected to various degrees through the right technical solutions but should eventually depend on the preferred balance between individual rights and the public interest. Universal anonymity has to be ruled out because of legal obligations related to money laundering and terrorist financing. Moreover, identification of holders of digital euro could be needed to limit the scope of users, or the size of their holdings (see below). The approach to privacy could be selective, i.e. only certain types of transaction (e.g. up to a certain threshold) could be permitted without registering the identity of payer and payee. Legislation may be required in this context.

**Preventing excessive use of the digital euro as an investment vehicle:** The ECB may want to prevent excessive shifts of commercial bank money into digital euro. This could be done through personalised limits, or through a tiered remuneration system in which holdings above a certain threshold (and/or holdings by certain entities) would be remunerated in a way that ensures that with this remuneration the digital euro is not an attractive investment relative to other risk-free assets openly accessible to everyone, e.g. AAA-rated short-term Government bonds, which are currently yielding around -0.6%, i.e. are subjective no a negative yield.

**Usage beyond domestic citizens and firms (restrictions on access).** The Eurosystem may want to restrict the scope of individuals/entities that can access digital euro services. The possibility of holding digital euro could be limited, for example, to residents in a certain jurisdiction. A digital euro without access restrictions would allow international use. However, given the risks that large-scale cross-border CBDC holdings and flows could entail, a cooperative approach among central banks issuing CBDCs is important. Extensive cross-border use of the digital euro could raise issues of currency substitution. This could maximise the benefits of a digital euro through a widespread usability while preventing uncontrollable capital dislocation and monetary policy implications.

## 4 The co-existence of a digital euro with commercial bank money and private payment solutions

CBDC has found support, but also raised concerns with regard to its impact on the structure and scale of bank intermediation. Advocates of sovereign money see bank disintermediation as the specific goal of CBDC. Others have raised concerns about the prospect of CBDC inflating the central bank balance sheet at the expense of the deposit funding of banks. CBDC replacing banknotes would merely imply the transformation of one form of central bank money into another with no effect on the rest of the financial system. By contrast, CBDC replacing bank deposits would reduce the availability of a cheap and relatively stable source of funding for banks and, indirectly, for the real economy. Moreover, it would require an increase in the dependence of banks either on central bank credit and/or on bank bond issuance, in the latter case combined with an increase of the central bank's outright holdings of securities. More recourse to central bank credit could lead to collateral scarcity issues and further intensify the importance of the central bank collateral framework, to the point that centralisation of the credit provision process could occur. Banks could also react to the reduced demand for deposits by increasing their recourse to capital markets, but this would be costly and might exacerbate vulnerabilities.

### 4.1 The continued co-existence of central bank and private (commercial bank) money

In Bindseil and Terol (2020), we argued that the emergence of CBDC should not lead to a fundamental reshuffling of the relative roles and importance of central bank and commercial bank money (and related forms of private means of payments). Central bank money should be sufficient to: (1) ensure the existence and reachability of a public fall-back solution to privately issued means of payments; (2) support financial stability; and (3) implement monetary policy. Central banks are moreover responsible for the value of the whole stock of the currency (central bank and commercial bank money) and for making access to the currency throughout the currency area a “commodity” irrespective of whether central or commercial bank money is held. But central banks do not aim at dominating the payment market. A 2003 BIS report (BIS, 2003) on this topic had emphasised the delicate balance between competition and co-operation between both forms of money: maintaining this balance implies a certain delineation of roles, and central banks should accept neither an outcome in which central bank money crowds out private initiative, nor an outcome in which central bank money is phased out by a market mechanism. Since 2003, the global financial crisis has reminded (sometimes brutally) central banks and the market of the issues of substitutability between commercial bank monies and central bank money. Furthermore, the last two decades witnessed (i) the rise of card payments, (ii) the relative decline of the use of cash, (iii) the appearance of instant retail payments, (iv) the appearance of FinTechs and BigTechs as providers of payment solutions, and (v) the renewed vision of narrow banking and payment systems fully pre-funded in central bank money. All of these have implications for the

role allocation and interaction between central bank and commercial bank money. The same certainly holds true for a digital euro.

## 4.2 Tiered remuneration as a solution to control the size of the central bank balance sheet and the flows of funds from bank deposits into CBDC

Bindseil and Panetta (2020) propose the adoption of a two-tier remuneration approach to CBDC in order to relieve the tension between two fundamental objectives; (i) to offer CBDC to citizens (in quantities sufficient for it to be used as means of payment) at interest rates that are never lower than those on banknotes (i.e. never below zero); and (ii) to protect financial stability and the effectiveness of monetary policy. The two-tier approach would also allow central banks to offer CBDC in an elastic and unconstrained way to other holders, such as corporates or foreigners. In doing so, it would also make it possible to overcome the perceived dichotomy between “retail” and “wholesale” CBDC.

While runs from deposits into banknotes are limited by the risks and costs of storing large amounts of banknotes at home or in other places, there would be no such limitations if households and institutional investors were able to hold unlimited amounts of CBDC (a riskless asset with no storage costs). A crisis-related run from bank deposits into low-risk financial assets (such as gold-related assets and highly rated government debt) can already happen in “electronic” form and therefore does not pose the same security issues (except for in the case of physical gold). However, this type of run (i) is dis-incentivised through the price mechanism (as the safe assets will become very expensive in a crisis); and (ii) on aggregate, does not reduce deposits with banks as such; for the investor, it would reduce exposure to default risk, but increase market and liquidity risk. Therefore, it is plausible that CBDC could make bank runs worse, as it would neither create physical security issues nor be subject to scarcity-related price disincentives if it were to be supplied in unlimited quantities and without other control tools, like banknotes.

Applying tiered remuneration to CBDC would have a number of key advantages. First, it would allow the retail payment function of money to be assigned to CBDC holdings below the threshold (tier one CBDC), while the store of value function would be assigned to tier two CBDC, which would essentially be dis-incentivised through a less attractive remuneration rate. Indeed, central bank money should not become a large-scale store of value (i.e. a major form of investment), as in that case the central bank would effectively become an intermediary for private savings (a development that would have no particular justification). Second, it would make CBDC attractive to all households, as reliance on tier one CBDC would never need to be dis-incentivised by negative remuneration. Third, it would help prevent excessive structural and cyclical bank disintermediation. Finally, it would preserve the ability to apply a negative interest rate policy (NIRP), as tier two remuneration could always be applied in such a way that it did not undermine the monetary policy stance.

The Eurosystem could, for example, make a commitment regarding the quantity of tier one CBDC. For example, it could promise to always provide a per capita tier one amount of €3,000, implying an amount of total tier one CBDC for households of around €1 trillion (assuming an eligible euro area population of 340 million). It is worth noting that the amount of banknotes in circulation in the euro area is slightly above €3,000 per capita (currently totalling around €1.2 trillion), securities holdings of the Eurosystem (including investment and policy portfolios) are currently above €3 trillion, and the banking system has excess reserves above €2 trillion. A per capita amount of €3,000 for tier one CBDC could be interpreted as covering the average monthly net income of euro area households, such that the normal payment function of money would be covered.

For corporates (financial non-banks and non-financials) the tier one allowance could be set to zero, or it might be calculated to be proportional to a measure of their size and, thus, presumed payment needs. Foreigners could be allowed to hold CBDC, but should not have any tier one allowance.

To solve the problems described above, the tier one remuneration rate,  $r_1$ , should never fall below zero, while the tier two remuneration rate,  $r_2$ , should be set such that tier two deposits are rather unattractive as an investment (i.e. less attractive than bank deposits or other short-term financial assets, even when taking into account risk premia). The two rates could co-move in parallel with policy interest rates, with special provisions ensuring that tier one CBDC positions are never remunerated negatively, and maybe less importantly, that tier two should be never remunerated at above 0%. The rates on CBDC would not be regarded as policy rates. Moving the rates would simply serve to keep a similar spread over time to other central bank rates and thus, in principle, to other market rates. Initially the ECB could, for example, consider the following remuneration for a tier one CBDC:  $r_1 = \max(0, iDFR - 2\%)$ , where  $iDFR$  is the remuneration of overnight deposits held by banks at the ECB. For a tier two CBDC, the remuneration formula could be:  $r_2 = \min(0, iDFR - 0.5\%)$ . Therefore, currently in the euro area, one would obtain  $r_1 = 0$  and  $r_2 = -1\%$ . The central bank would explicitly reserve its right to worsen the tier two remuneration rate in a financial crisis, while it would commit to never worsening the formula for tier one remuneration, especially as regards the zero-lower bound.

### 4.3 Synergies with, and reliance on, the private sector

In its report on a digital euro, the ECB expresses the idea that a possible digital euro would be distributed with the help of supervised entities, in particular banks. This would have a number of advantages, such as providing for a way to convert commercial bank money into central bank money and vice versa. It would also mean that customer authentication by commercial banks and their client relationships could be relied on to address customer questions and problems. In the euro area, the share of unbanked citizens is 3.6%, with, however, quite some divergence, Greece having a 26.6% share and France 0.4% (data refers to 2010: Ampudia and Ehrmann, 2017, 21, ECB WPS 1990). As the ECB also set out its commitment to

financial inclusion in its digital euro report, it seems logical to not leave aside the unbanked, but to try to allow them to use the digital euro in one way or another, so as to ensure that the digital euro can improve financial inclusion.

While it seems clear that central banks seem most inclined towards an approach in which regulated financial intermediaries would act as agents and would play a key role in distributing CBDC, this would raise a variety of policy and technical questions which would need to be answered in one way or another:

How can digital euro design be as open as possible with regard to the way intermediaries can integrate the digital euro into their existing solutions, while still guaranteeing safety and integrity?

What categories of supervised entities could offer digital wallets in digital euro?

Should the ECB ensure that market power by single providers of wallets remains limited in the distribution of the digital euro?

Would it be an issue from the perspective of monetary sovereignty if non-European firms or subsidiaries of non-European firms were to play an important role in distributing the digital euro? What degree of concentration to single non-European firms, and to foreign firms in total, would be acceptable?

In addition to these examples of policy questions, various technical questions relating to the integration of the digital euro into the wallets of private providers will of course arise.

#### 4.4 Usage costs and cost recovery

For retail central bank money, i.e. banknotes so far, the universal approach taken by central banks has been to offer issuance services and distribution free of charge, but this was in any case a highly profitable service as long as such interest-rate free liabilities could be matched with interest bearing assets, leading to solid profitability for central banks and regular profit transfers to governments. In the negative interest rate environment, which has prevailed in the euro area for some years now, this approach has not been questioned either. However, with a digital euro, the central bank would move much closer to the habitat of private issuers of digital means of payment, and competition issues could be perceived as increasingly relevant. For example, in the area of provision of RTGS and instant payment services, and also in the area of securities settlement, the Eurosystem in principle (and also for competition reasons) aims at imposing fees that enable full or partial cost recovery. For the digital euro, the ECB's report states that it would be "free of charge for basic use by payers". However, if the digital euro were distributed by private providers and integrated into their existing front-end solutions, and if these providers also undertook the necessary efforts to on-board their clients to the digital euro and to manage the relationship generally, the question would arise as to how these providers would be compensated in one way or another for this, i.e. what would

incentivise them to incur the related costs. Also, it needs to be considered if a merchant fee could apply to payments in digital euro.

#### 4.5 How much functionality for the digital euro?

Designing a digital euro from scratch obviously creates the temptation to give it the most comprehensive and state-of-the-art functionality, based on the most innovative technology. It could be likened to the thickest version of the Swiss army knife some of us dreamt about as children. For example, a digital euro has been asked to (i) allow for fully anonymous payments to protect privacy, while respecting anti-money laundering rules; (ii) allow for offline payments; (iii) allow for instant credit transfers and direct debits, (iv) be programmable and allow for “smart contracts” for advanced use cases in industry and commerce; (v) ensure financial inclusion (meaning potentially also usable by the non-banked and those without mobile phones); (vi) be as convenient to use as existing private sector solutions; (vii) include card, mobile, and internet/desktop access.

While there are of course merits of designing a new instrument like CBDC in a way that is comprehensive and adds as much value as possible for society, this ambition would also create significant project risk, and in any case would increase the duration and costs of preparing for CBDC issuance. Moreover, the more ambitious and comprehensive the functionality of a digital euro would be, the more it might come into conflict with the idea of not crowding out the private sector.

Last but not least, the payments industry provides many examples of promising approaches and technologies which did not ultimately take off for reasons that could not have been foreseen. On the technology side, expectations regarding the business cases for blockchain technology have not yet been met. On the applications side, for example, the German Geldkartenfunktion associated with the Giro-card would have allowed for off-line and anonymous electronic payments in Germany. It was deployed, with significant costs, for tens of millions of Girocards in Germany starting in the late 1990s. But it was never sufficiently used, and the different segments of the German banking system announced their exit from the scheme starting in 2014.

Another reason to possibly accept a digital euro with a somewhat more limited functionality is that the ECB has committed to continuing to issue banknotes with no time limit, and both the ECB and the EU Commission have also expressed their commitment to ensuring that cash remains usable. Therefore, the possibility of fully anonymous off-line payments using central bank money should remain for years anyway, and it may thus be argued that the necessity of offline and totally anonymous payments being offered by a digital euro is lower, as long as cash remains highly usable.

## 4.6 Should we worry more about too little or too much demand for a digital euro?

A digital euro with a very narrow set of functionalities (potentially replicating the properties of cash as much as possible, and avoiding going beyond that in any way) may bear the risk of being unsuccessful, as a higher degree of privacy alone may not be a sufficient factor in practice to ensure significant use of the digital euro. The failure of the German Geldkartenfunktion associated with the Girocard may illustrate this (the Geldkartenfunktion could have been used to strengthen privacy in day-to-day payments). In contrast, a very rich digital euro, including standard giro account functionality, efficient POI front-end payment solutions, with programmability, offered largely for free and without any penalising remuneration, could be a very attractive proposition that could, if forcefully promoted by central banks and governments, significantly crowd out private sector payment providers.

A central bank may therefore want to build certain stabilising features into the eventual demand for CBDC. For example, tiered remuneration is such a tool, which could help to approximately target a total stock of CBDC in a range which could come close, in order of magnitude, to the current stock of banknotes (Bindseil and Panetta, 2020). Avoiding a too low or a too high market share of CBDC in retail payments at the POI could be aimed at through the breadth of functionality and pricing, and with a careful deployment starting with a not too broad functionality. The pricing of certain services could also potentially be tiered, inspired by tiered remuneration.

As the demand curve for POI payments in CBDC might potentially be less steep due to network effects, special attention needs to be devoted to understanding how to achieve a balanced role of CBDC in this field. At the same time, a relatively high market share of a CBDC at the POI should not lead to the same welfare/economic issues that a high market share of a single private solution would have – namely inviting higher profit margins as a result of an abuse of market power.

## 5 The way forward

After publishing its report on 2 October 2020, the Eurosystem continued its work on a digital euro:

1. From 12 October 2020 to 11 January 2021, the ECB conducted a three-month public consultation to gather the views of institutions, citizens and professionals, helping to better understand the need for a digital euro and the related functional requirements, and published the related results.
2. The Eurosystem launched practical experiments, starting in October 2020. Practical experimentation is necessary to test functional design options and explore their technical feasibility, as well as their ability to satisfy the needs of prospective users. Results were published in July 2021.

3. The Eurosystem continued its conceptual analysis, such as, for example, analysis of implications for the financial system and monetary policy, and how these depend on the functional specifications of a digital euro.
4. The follow-up work on a digital euro will also involve European institutions and fora. A contact group with the European Commission to discuss digital euro issues was launched on 19 January 2021.
5. The international implications of issuing CBDCs warrant open dialogue with other central banks and international organisations. The ECB participates in work by the G20 and G7 and works together with a group of central banks and the BIS.

On 14 July 2021, the ECB Governing Council decided to launch a digital euro project, starting with an investigation phase. The investigation phase would aim at identifying at least one minimum viable product able to meet the requirements described in the ECB report. The objective of such a project is to ensure that the Eurosystem is prepared to issue a digital euro if it decides to do so in the future.

# Chapter 2 – Climate change: time to act

Prepared by Elisabeth de Vogel and Olaf Sleijpen<sup>1</sup>

## 1 Introduction: why climate change matters for financial stability

**Climate change is at the forefront of the minds of financial institutions, markets and central banks.** Since Mark Carney’s famous “tragedy of the horizon” speech [2015], the risks posed by climate change to our economic and financial stability have gradually become accepted. These risks are currently at the top of the agenda for financial institutions, regulators and central banks.

**According to** the US National Aeronautics and Space Administration (NASA)<sup>2</sup>, **climate change not only encompasses global warming, but refers to the broader range of changes that are happening to our planet, including rising sea levels and shifts in flower/plant blooming times.** These are all consequences of the expected rise in average temperatures, caused by increased emissions of carbon and other greenhouse gases since industrialisation. The terms “global warming” and “climate change” are sometimes used interchangeably, but strictly they refer to slightly different things.

**The World Economic Forum [2020] considers the possible failure of climate change mitigation, together with extreme weather events and natural disasters, to be a major risk for the global economy.** It was agreed in the Paris Climate Agreement [2015] to keep the global temperature rise this century below 2° C, which is turning out to be a major challenge. Financial institutions, regulators and central banks have embarked on numerous initiatives to step up their efforts in this respect. One of the most important initiatives is the global Network for Greening the Financial System (NGFS), a group of central banks and prudential supervisors in which experiences are exchanged, best practices are shared and promoted, and contributions are made to the development of environmental and climate risk management in the financial sector. De Nederlandsche Bank (DNB) and the European Central Bank (ECB) are both members and keen supporters of the NGFS. As guardians of financial stability, knowledge of climate change risks (CCRs) is a prerequisite for central banks to be able to mitigate these risks appropriately.

**Several types of risks that can threaten financial stability have been identified: physical, transition and liability risks.** In short, physical risks arise from climate and weather-related events, such as floods, droughts or storms and sea level rises that can result in operational disruptions and/or financial losses. Transition risks

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<sup>2</sup> See [here](#).

manifest themselves through the process of adjustments towards the intended lower carbon emission economy. This includes, for instance, the loss of value or creditworthiness of companies that rely heavily on carbon-intensive products or services (“stranded assets”). Finally, liability risks arise from parties incurring losses from the effects of climate change and seeking compensation from those they hold responsible, which may be financial institutions.

## 2 Central banks’ involvement in climate change risks

### 2.1 Central banks 1) Rules and Standards, and research; 2) Investor and monetary policy

**Considerations for central banks to engage in CCRs can be in several areas, depending on their mandate. According to the ECB<sup>3</sup>, there are three major avenues through which the ECB, and central banks more generally, can contribute [2020].** The first is through involvement in defining rules and standards, and in promoting research for a better understanding of the implications of climate change for financial markets and monetary policy. For instance, as a member of the NGFS, the ECB has actively contributed to the development of the EU taxonomy of sustainable economic activities. The second way is by ensuring that central banks themselves are environmentally mindful and responsible investors (with the central bank’s pension fund investments and other non-monetary policy portfolios). The third, and most debated, way in which central banks can contribute is by taking climate considerations into account when designing and implementing monetary policy operations. In fact, the Eurosystem is already buying eligible green bonds as part of the corporate sector purchase programme (CSPP) and the pandemic emergency purchase programme (PEPP). The Eurosystem currently holds around 20% of the eligible green corporate bond universe.

In the remainder of this chapter, we will mainly focus on initiatives taken by central banks to mitigate climate risk in the area of payments and market infrastructure, which is at the heart of this book.

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<sup>3</sup> “Never waste a crisis: COVID-19, climate change and monetary policy” (2020), speech by Isabel Schnabel (member of the Executive Board of the ECB) at a virtual round table on “Sustainable crisis responses in Europe”, organised by the INSPIRE research network, 17 July.

## 2.2 Collateral policy

**The development of a “green” collateral policy by central banks could be an option.** The ECB, for one, will start accepting sustainability-linked bonds as collateral from January 2021.<sup>4</sup> It has decided that bonds with coupon structures linked to certain sustainability performance targets, will become eligible as collateral for Eurosystem credit operations and also for Eurosystem outright purchases for monetary policy purposes, provided they comply with all other eligibility criteria. The coupons must be linked to a performance target referring to one or more of the environmental objectives set out in the EU Taxonomy Regulation and/or to one or more of the United Nations Sustainable Development Goals relating to climate change or environmental degradation. This further broadens the universe of Eurosystem-eligible marketable assets and signals the Eurosystem’s support for innovation in the area of sustainable finance.

## 2.3 Financial innovation

**Developments in central bank digital currencies (CBDC), often referred to as the “digital euro”, may also imply a substantial contribution to a more environmentally-friendly payment system.** The ECB recently published a report that examined the issuance of the digital euro from the Eurosystem’s perspective.<sup>5</sup> This digital euro should be seen as central bank money offered in digital form for use by citizens and businesses for their retail payments. It would complement the current offering of cash and wholesale central bank deposits. Several scenarios are described to clarify possible reasons for the issuance of the digital euro, of which two are relevant to this chapter of the book. First, there is the need to mitigate the probability that a cyber incident, natural disaster, pandemic or other extreme event could hinder the provision of payment services. Second, if (and when) the Eurosystem will decide to proactively support improvements in the overall costs and ecological footprint of the monetary and payment systems. The design of the digital euro should be based on technological solutions that minimise its own ecological footprint and improve that of the current payment ecosystem.

## 2.4 Financial market infrastructures

**CCRs may also have an important bearing on Financial Market Infrastructures (FMIs), which include payment systems.** The impact of CCRs on FMIs is an important and rather new insight, which deserves particular attention in this chapter, particularly as FMIs are pivotal in maintaining financial stability. FMIs are often supervised by central banks in strong cooperation with securities supervisors. For this purpose, and given FMIs’ global importance, The Bank for International Settlements (BIS) Committee on Payments and Market Infrastructures (CPMI) together with the International Organization of Securities Commissions (IOSCO)

<sup>4</sup> ECB press release, 22 September 2020.

<sup>5</sup> European Central Bank (2020), *Report on a digital euro*, 2 October.

published the Principles for Financial Market Infrastructures (PFMIs) in April 2012.<sup>6</sup> All members adopt and apply these standards to the relevant FMI in their jurisdictions to the fullest extent possible. The ECB and DNB are members of these standard-setting bodies. In addition to the role of FMI supervisor and policymaker, central banks often also run a wholesale payments system (e.g. TARGET2 in the Eurosystem – a real-time gross settlement system).

**FIMs facilitate the clearing, settlement and recording of monetary and other financial transactions.** These infrastructures play an important role in fostering financial stability and hence, if not properly managed, they could create significant risks for the financial system. Especially in times of market stress, that could be triggered by climate change, it is of the utmost importance that risks are recognised and managed well, so that markets remain resilient. The PFMIs apply to payment systems (PSs), central securities depositories (CSDs), securities settlement systems (SSSs), central counterparties (CCPs) and trade repositories (TRs).

## 2.5 The PFMIs

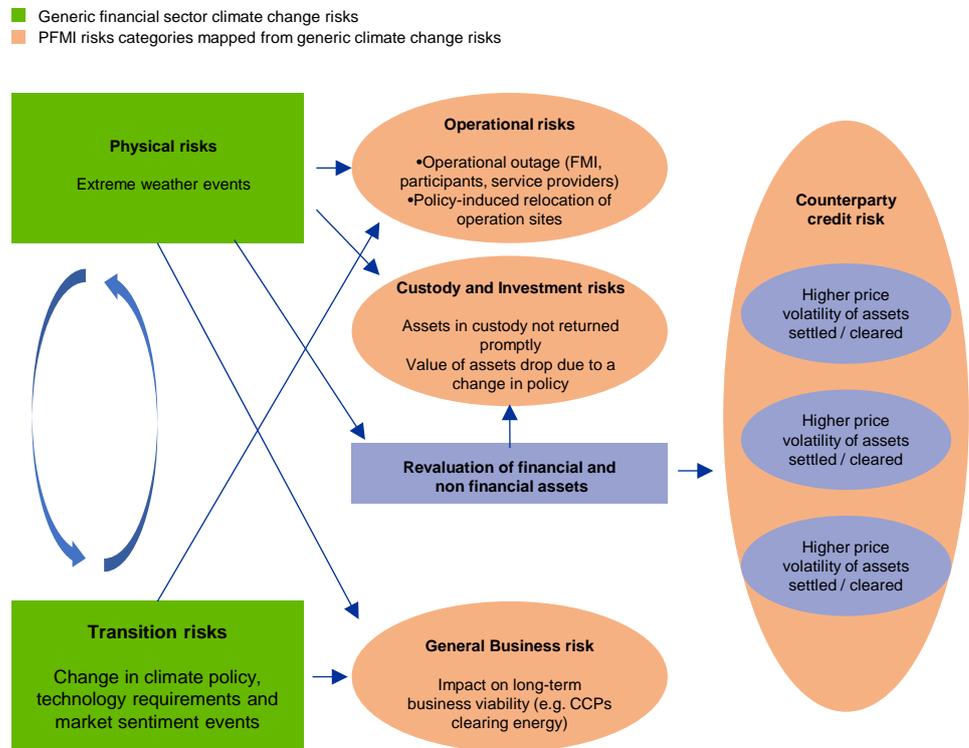
**The PFMIs address the general organisation, the credit and risk management, settlement, default management, general business and operational risk management, access, efficiency and transparency of FIMs.** Physical and transition climate change risks may bring about various types of risk that the PFMIs address such as credit risk (Principles 4-7), general business risk (Principle 15), custody and investment risk (Principle 16) and operational risk (Principle 17). Principles 2, 3 and 23 on governance, a framework for comprehensive management of risks and disclosure of rules, key procedures and market data, are also relevant.

Figure 1 clarifies how climate-related risks could impact the risk categories distinguished in the PFMIs. Physical risks may, for instance, involve operational risks for FIMs. Transition risks may endanger the business model of certain FIMs (e.g. clearing of certain commodities trading) or the value of underlying collateral held by the FIMs.

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<sup>6</sup> See [here](#) and [here](#).

**Figure 1**  
Key transmission channels of climate-related risks



Source: BIS/CPMI [2019]

## 2.6 Description of relevant principles

## 2.7 Governance (Principle 2)

FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI but also support the stability of the broader financial system, and other relevant public considerations, including the objectives of relevant stakeholders. This implies that current assumptions and risk management techniques should regularly be questioned. FMI need robust governance and strong awareness. This means support and involvement of the senior management that could necessitate the establishment of a new internal sustainability office or committee.

## 2.8 Framework for the comprehensive management of risks (Principle 3)

This principle requires that an FMI should have “a sound risk-management framework (including policies, procedures, and systems) that enable it to identify, measure, monitor, and manage effectively the range of risks that arise in or are

borne by the FMI”, which includes climate change-related risks. As a basis for comprehensive risk management, FMIs may need to consider developing information capabilities (potential size of operational costs, impact on asset valuations and exposure to “brown assets”) to better assess climate risks. In addition, FMIs and relevant authorities could be usefully informed by closely following the development of monitoring and stress testing guidelines for climate change-related risks at the international level, such as the NGFS.

Recent findings in the discussion note of the Council on Economic Policies state that available metrics should be used for the measurement and assessment of risk exposure [2020]. FMI, central banks and supervisors should, therefore, not wait for the perfect metrics to measure CCRs in relation to their business, but rather should act now.

## 2.9 Credit risk, collateral, margin and liquidity risk management (Principles 4–7)

An FMI should effectively measure, monitor and manage its credit exposure to participants and those arising from its payment, clearing and settlement processes. FMIs and their participants face the risk that a counterparty, whether a participant or other entity, will be unable to fully meet its financial obligations when due or, at any time in the future. An FMI should therefore also effectively manage its liquidity risk (Principle 7). An extreme weather event can damage the value of financial assets or non-financial assets (bank branches, data centres, ATMs) of an FMI participant and as a consequence erode its financial condition and its ability to meet its financial obligations. This risk is also relevant for FMIs that are exposed to counterparty credit risk and related liquidity risk, such as CCPs. Extreme weather events may also lead to higher volatility in the valuation of financial assets that a CCP clears. The volatility of asset prices can cause CCP margin breaches – as the Nasdaq and ICEU cases (described later in this chapter) illustrate. Moreover, extreme weather may erode the value of financial assets that an FMI accepts as collateral. According to Principle 5, FMIs should accept collateral with low credit, liquidity and market risk. Changes in climate policy, especially if abrupt and disorderly, can erode the value of the financial assets of an FMI participant and its financial condition. These changes could also trigger higher volatility in the valuation of financial assets that a CCP clears or an FMI accepts as collateral. In addition, changes in environmental policies and technology may reduce demands for certain market segments, resulting in a possible reduction in market liquidity of a product that a CCP clears or accepts as a collateral, which in turn may make its risk management (margining, member default management and porting) more challenging. According to Principle 6, a CCP should cover its credit exposures to its participants for all products through an effective risk-based margin system.

## 2.10 General business risk (Principle 15)

These are the risks related to the business model of an FMI and its underlying financial position. Extreme weather or other climate change-related events may increase operational expenses for an FMI (of any type) for a short or prolonged period or may damage the value of non-financial assets of an FMI, causing the FMI to experience an extraordinary one-time cost (e.g. a gradual sea level rise necessitating a relocation of an FMI's operation site), or long-term financial losses related to liability or reputational damage (e.g. if after a flood or hurricane an FMI is unable to perform and deliver its services). Changes in environmental policies and technology may reduce demand in certain market segments and harm the long-term business viability of the FMIs serving them. This risk type is most relevant to CCPs (and affiliated exchanges) that clear energy-intensive/high-carbon products, such as oil and gas, the markets for which, may shrink over time. An FMI may suffer from reputational damage if it is perceived to be lacking in preparedness for, and commitment to, the transition to a greener economy/financial system. Principle 15 (general business risk) requires an FMI to “have robust management and control systems to identify, monitor and manage general business risks, including losses from poor execution of business strategy, negative cash flows or unexpected and excessively large operating expenses”.

## 2.11 Custody and investment risks (Principle 16)

These are the risks related to an FMI's timely access to assets that they own or hold on behalf of participants and the value of its invested assets. Assets held in custody may not be returned promptly when required, due to an operational outage of a custodian caused by an extreme weather event. In another scenario, repo assets may not be returned or invested assets may not be liquidated promptly, due to an operational outage of a counterparty. Furthermore, the value of invested assets may drop due to the damage caused by an extreme weather event. A sudden change in climate or climate policy may cause the value of invested assets to rise or fall sharply. This channel may be relevant if an FMI invests in assets that are more exposed to climate change risks (equities in energy, commodity or transportation sectors, for instance). Investment risk arising from climate change could be mitigated by considering the environmental, social and governance (ESG) factors of assets when making investment decisions. Principle 16 requires an FMI to “safeguard its own and its participants' assets and minimise the risk of loss on and delayed access to these assets. An FMI's investments should be in instruments with minimal credit, market and liquidity risks”.

## 2.12 Operational risk (Principle 17)

All types of FMI face operational risk from internal and external events leading to the reduction, deterioration or breakdown of their services.

Extreme weather may lead to an operational outage of an FMI, one or more of its participants or relevant utility/third party service providers.

Climate-related public policies inducing a shift to a low-carbon economy may render the current premises (operation or data sites) of an FMI unusable or too costly to use and necessitate their closure or relocation, leading to higher operational risk (as well as general business risk, as discussed above). This principle requires an FMI to “have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption”. Due to the unpredictable nature of climate change risks, historical data may become less informative for risk management purposes. In the context of business continuity planning, this may effectively require the assumption of more extreme, forward-looking risk scenarios. If climate change leads to more frequent “once-in-a-century extreme weather events”, standard statistical credit risk management techniques, based on a normal distribution, may need continued re-assessment and more rigorous stress testing with a wider range of scenarios, including hypothetical ones. FMI overseers/supervisors could consider assessing how an FMI’s business continuity plans address possible events arising from climate change.

## 2.13 Transparency (Principle 23)

Finally, appropriate disclosure regarding an FMI’s preparedness for climate change will help its participants, linked FMIs and the broader financial system in their management of climate change-related risks. Principle 23 (Disclosure of rules, key procedures and market data) requires an FMI to “provide sufficient information to enable participants to have an accurate understanding of the risks, fees and other material costs they incur by participating in the FMI”. The work done by the Financial Stability Board (FSB) Task Force on Climate-related Financial Disclosures (TCFD) is also relevant and useful for FMIs in this context.

## 3 Conclusion

Having assessed the PFMI, it can be concluded that CCRs, although not explicitly addressed, are an integral part of them. The PFMI is described on a rather high level and can be considered flexible enough to address new types of risks, such as those arising from climate change. On the other hand, they do not explicitly mention (nor provide explicit guidance on) CCRs – which is only natural given that they date from 2012, i.e. before the Paris Agreement. Hence, the PFMI merit further attention to ensure the explicit inclusion of CCRs in clear language.

## 3.1 Possible actions on CCRs

### 3.1.1 Global issues need a global approach

**Climate change and its risks seem to be a relatively new area for the FMI industry and its regulators, whilst the banking and insurance sector seem to have begun to consider CCRs as part of core financial and strategic risk.**

Regulator and supervisor mandates, which may deserve attention as argued above, will of course be a determining factor for future involvement in climate change-related issues. However, given these mandates, it would seem that a global financial stability and supervisory approach is required to take further action in relation to the global issue of climate change – which is also certain to affect FMIs. The PFMI provide for potential global coverage of CCRs, hence, it is advisable to explore possibilities for more specific guidance to FMIs and their supervisors. As mentioned above, the PFMI were formalised about ten years ago (before the Paris Agreement) and, furthermore, no explicit reference to CCRs is made in the European Market Infrastructure Regulation (EMIR), one of the relevant legislative acts that has followed on from the PFMI.

**An important step has been taken by the BIS/CPMI by organising two webinars on climate change-related risks in August 2020.** The intention was to raise awareness and promote preparedness of FMIs and their supervisors. They stimulated the exchange of experiences and emerging good practices. The webinars were well received and provide a basis for further dialogue and collaboration between standard-setting organisations, including CPMI and IOSCO. In addition, further research and engagement with FMIs would be helpful. A possible way forward could be to create a “club of the willing”, which could further strengthen the process of improving understanding of CCRs and determining what guidance should be developed to keep the FMI industry resilient. As we all know, a chain is as strong as the weakest link, which means that there is a necessity to determine how the integration of CCRs into risk management and supervision of FMIs can be improved.

## 3.2 Case study

**Physical risks, in particular business continuity risk, are likely to be the most immediate and relevant for FMIs.** Climate change could drastically change the probability, intensity, duration and scope of operational disruptions. However, FMIs can also be exposed to transition risks. An FMI may not be adequately managing its business risks if it provides services to a market of “brown” financial products that could shrink in the long term. Transition risks can manifest themselves in an indirect, but significant way, when commodities and commodities derivatives markets are affected.

**An example illustrating physical risk is the situation in Manhattan after Superstorm Sandy in 2012, causing massive flooding in the building of the Depository Trust & Clearing Company (DTCC).** In preparation for the storm,

DTCC implemented its business continuity plan and maintained its critical operations, meeting all critical deadlines for clearing fund, settlement and other processes. However, it took several months for all certificates to be recovered and restored, with DTCC recovery efforts continuing into 2014 for the remaining certificates – replacing those that were destroyed or damaged beyond repair.

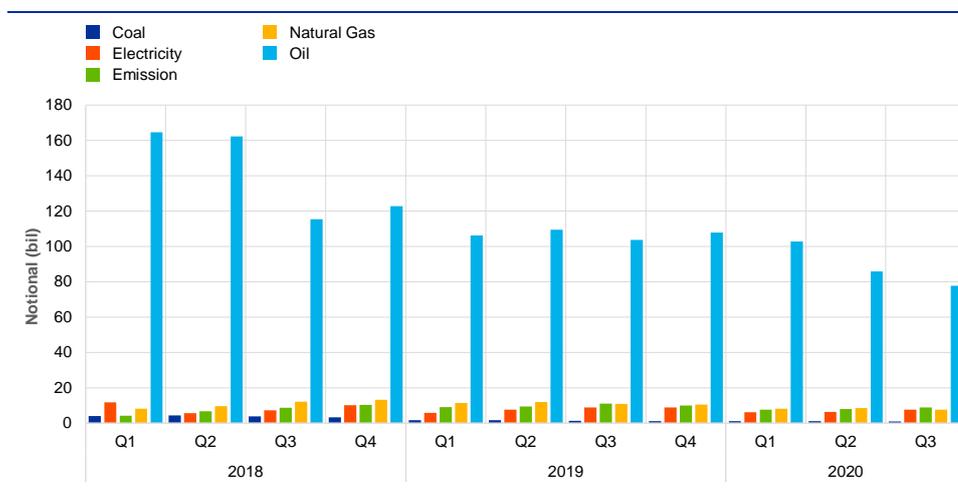
**A good illustration of transition risk is the margin breach situation at ICE Clear Europe (ICEU, a UK-based CCP) that, fortunately, was successfully managed and no default occurred.** Between May 2017 and September 2018, prices of EU carbon allowances (EUA) increased significantly, rising from €5 to €25 per tonne. This surge was driven by the introduction of the “Market Stability Reserve (MSR)”, a new market-balancing mechanism that controls the flows of EUAs into the market each year with the aim of lifting carbon prices. Due to the considerable volatility experienced during this period, ICEU suffered a significant margin breach of \$1.2 billion when the price of EUAs fell significantly in two days.

**An example of a possible combination of both physical and transition risk occurred when Nasdaq Clearing (a Nordic CCP) was confronted with the default of a clearing member – driven by an unprecedented move in German/Nordic power contracts.** In September 2018, unanticipated high rainfall after a dry summer affected Nordic electricity prices. The high rainfall in the Nordic region fuelled market speculation that hydro reservoirs would suddenly replenish, making it cheaper to produce hydropower and resulting in lower electricity prices. At the same time, German electricity prices increased as a result of a new EU mechanism to reduce the supply of carbon emission allowances. These developments caused market turmoil in certain commodity prices and a widening of spreads leading to significant margin calls on certain clearing members. Due to positions that relied on the correlation between the Nordic and German electricity prices, these margin calls eventually led to the default of a clearing member. The default also affected other clearing members of Nasdaq Clearing who had to make contributions to compensate for losses.

**To gain a better understanding of this case (and therefore any related future events), DNB investigated the impact of the Nasdaq Clearing case on the Dutch derivatives commodities market and related clearing practices.** An overview of market developments (see Chart 1 below) shows the development of energy and environmental derivatives outstanding, for Dutch counterparties over the past two years. This market overview clearly shows that

**Chart 1**

Energy and environmental derivatives outstanding for Dutch counterparties



commodity derivatives trading in fossil fuels like oil and coal are becoming less popular, while other, more environmentally-friendly alternatives, remain equally popular.

A study was carried out to determine whether Dutch market participants changed their clearing behaviour in the energy derivatives market after the Nasdaq Clearing case. A small decline in the total clearing rate was observed shortly after the event and the clearing rate only started increasing again in 2020. It was also observed that the cleared market became more concentrated towards a single CCP, which may become a challenge in the future with the expected increasing importance of commodities and commodities derivatives markets. All in all, this shows that disruptions in the market caused by climate change-related events could potentially have an impact on the business of CCPs. It is important for market participants, as well as authorities and regulators, to take these risks into account.

### 3.3 Environmental footprint

**Addressing the risks of climate change is one thing, trying to contribute to mitigating these risks by reducing the environmental footprint is another. To be able to do so, we need knowledge of our own footprint.** A short overview of DNB's work on retail payments (cash and non-cash) in this respect could be inspirational for similar exercises in the area of wholesale payments.

**The Paris Agreement of 2015 set the targets of a 50% reduction in greenhouse gas emissions (from 1990 levels) by 2030 and global emissions being reduced to 5% by 2050.** The European Green Deal defines a pathway for the EU to achieve these targets. The ECB and the euro area national central banks have also taken specific steps in the area of payments to help reach these targets. However, before claiming success, we need to measure the current footprint, and by doing so set a baseline for further efforts.

**A scientifically validated methodology to determine the environmental impact of a product or service is that of life cycle analysis, which firstly entails listing all raw materials or semi-finished products, and the processing they undergo, before finally ending up in the product or service.** This makes it possible to ascertain the environmental impact of each of the materials, processing and transportation steps, and therefore calculate the total impact of the product or service in question. The carbon footprint is typically determined on the basis of a database<sup>7</sup>, listing the measured environmental impact of each mining or manufacturing step, together with the related energy use and waste generation. In this way, we can establish the overall environmental footprint of the product or service from cradle to grave.

**Using the life cycle analysis method, DNB has determined the impact on climate change of parts of the point-of-sale (POS) payment system in the Netherlands, i.e. of cash and of debit card payments, which are the country's most frequently used retail payment methods.** The results are shown in Chart 2 below. Debit card payments were introduced at the end of 1990 in the Netherlands, and by 2015 they accounted for half of the retail payments at points of sale. In 2019, their share was two-thirds, with an estimated one-third being accounted for by cash payments. The advantage of electronic debit card payments is that a relatively small increase in infrastructure can result in a substantial increase in the number of payments that can be made. The use of a larger share of renewable electricity for transaction processing has even lowered the carbon emissions since 2015. Thus, despite the increased use of debit cards, greenhouse gas emissions have been lowered. In 2016 and 2018 DNB conducted two studies on the environmental impact of POS payments in the Netherlands in 2015, The first study was on debit card payments (Roos Lindgreen et al., 2018) and the second one was on cash payments, including both banknotes and coins (Hanegraaf et al., 2020). Furthermore, DNB extended the studies to the period around 1990 and to the situation existing in 2019. The results of these studies have been shared with market participants in the retail payments industry to encourage market participants to reduce the social costs and environmental footprint of cash and debit card payments. The ECB Single European Payment Area initiative has further increased the use of debit cards in euro area countries, thereby reducing the costs and environmental footprint of the European retail payment system.

For cash, initiatives have been taken by the ECB and the NCBs to reduce the carbon footprint. For the Netherlands, and probably for many other euro area countries, the switch from their national currency to the euro in 2002 had a significant positive environmental impact. The Dutch guilder coins, for instance, were mainly made of nickel, which has a considerably higher negative impact on climate change than the copper and steel mainly used for euro coins. More recently, the coating given to some of the denominations of the second euro banknote series will enable them to last longer. The increased lifespan considerably reduces the environmental impact of banknotes, and DNB has been actively involved in this development. With regard to the cash cycle, DNB has been steering towards consolidation of key commercial

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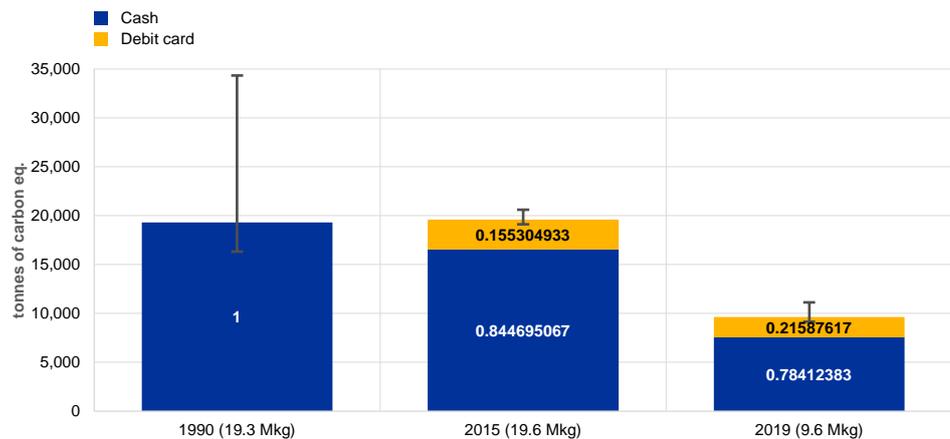
<sup>7</sup> Such as [the Ecoinvent database](#), or the [EU Product Environmental Footprint](#).

players in the national cash distribution network. Recently, ATMs of different banks in the Netherlands have established a single national network, thereby reducing overheads in the ATM network and lowering overall electricity consumption. In response to the Paris Agreement, DNB aims to further reduce the impact on climate change of the Dutch cash cycle to 4,000 tonnes of carbon (equivalents) per year by 2030.

### Chart 2

#### Annual impact of cash and debit card payments in the Netherlands on the climate

(absolute numbers along vertical axis, relative percentages inside graphs)



Figures for 1990 have a larger uncertainty, indicated by the black error bars, as it was difficult to find reliable historical data

## 3.4 Concluding remarks

**The objective of this Chapter was to analyse the impact of climate change-related risks on payments systems and market infrastructures.** Despite growing awareness of the risks emanating from climate change for financial stability and financial institutions, the interest in this topic in the area of payments is relatively recent.

**It is argued that this growing interest is overdue, as payments systems and market infrastructures are also subject to risks stemming from climate change.** This is particularly true for market infrastructures that have a bearing on financial stability. The materialisation of risks in this context may seriously endanger overall financial stability.

**Hence, there is a need to step up efforts – by financial institutions, as well as regulators and supervisors – to measure and monitor climate change-related risks and take action to mitigate them.** Although international standards appear to cover these risks implicitly, it is also important to enshrine them explicitly, so as to allow the legislator, regulator and supervisor to give more guidance in managing them appropriately.

# Chapter 3 – Future challenges for oversight

Prepared by Denis Beau<sup>1</sup>

## 1 Introduction

Central banks are involved in the market infrastructures and payments ecosystem in three major ways. A core role has always been to provide a safe settlement asset for many payment and settlement systems. Many central banks are also operators of one or more systems. In pursuit of their public policy objectives in relation to monetary and financial stability, central banks have also sought – through the use of oversight activities – to influence the design and functioning of payment and settlement systems, to ensure that they are safe and efficient.

With the dynamism and expanding role of the private sector in providing payment and settlement over the last decades, oversight activities have become a core responsibility of central banks and a function which has had to be performed in a more formal and systematic way. However, the transformation that is underway of the market infrastructures and payments ecosystem challenges (in a number of old and new ways) how this oversight responsibility can be carried out effectively and calls for adaptations in the implementation of the principles which govern the activity.

### 1.1 Towards a new payment and settlement landscape

The payment and settlement landscape is currently dominated by a bank-based ecosystem; an interchangeable use, at par, of commercial bank and central bank money as settlement assets; and an anchor role for central bank money – which is the sole settlement asset with legal tender status. It is certainly an understatement to say that this landscape may be significantly altered, given the technological developments and changes in consumer preferences that are taking place. For instance, in the field of payments, both the “front-end” arrangements – that ensure the interaction between the payer or payee and the payment service provider, to initiate or receive payments – and the “back-end” arrangements – which transfer information and funds between the payer and the payee – are changing.

In addition, with the emergence of so-called “crypto assets” like the bitcoin and so-called “stablecoins”, we may also see new settlement assets develop which may compete against and possibly (according to their promoters) replace commercial and central bank money as settlement assets at the centre of our payment and settlement systems. These possible developments may accompany the trend toward

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<sup>1</sup> Denis Beau is Deputy Governor of Banque de France.

the “tokenisation” of financial assets and the possible emergence of new tradable assets associated to specific rights, such as utility tokens. In this vein, a series of private and public initiatives tokenising financial assets have emerged in the world over the last three years, with the aim of generating new business opportunities while improving the functioning of market infrastructures.

Fintechs and global technology firms (the so-called “big tech”) are likely to be important contributors to the changes underway. As new players in the payment and settlement ecosystem, they are progressively bringing new business models, from fee-based to data-driven, where payment services are provided free of charge in exchange for personal data that offer deep insights into users’ preferences. Due to their global footprint, they are uniquely positioned to offer services in the area of global cross-border transactions, where current solutions are seen as not efficient enough.

## 1.2 Existing risks amplified; new risks revealed

For its advocates, the current evolution of the payment and settlement landscape promises better consumer experiences and greater efficiency of financial market infrastructure. However, alongside the opportunities to improve our payment and settlement systems, this evolution also brings with it new risks, while also amplifying old ones.

Among the old risks, we should consider in particular the rise of interdependencies. Indeed, digitalisation and tokenisation of the payment and settlement ecosystem driven by Tech firms may not lead to a more decentralised system. On the contrary, as the centripetal forces of network effects may benefit large conglomerates the most, it could lead to greater dependency on a few key players (and their systems and services) without, by definition, any readily available alternatives. Cyber risk is also likely to be on the rise: as payment solution or market infrastructures incorporate a large part of new technology in their components, they tend to be more and more exposed to cyberattack. In particular this concerns market infrastructures relying on complex IT systems, often composed of different layers of legacy systems, databases, gateways, etc. Furthermore, they are by nature in the nexus of the financial systems, with communication standards and procedures with financial entities, other market infrastructures and other stakeholders. A cyberattack against them may have widespread consequences for the financial system, with potential cross-border, knock-on effects.

The new risks to financial stability and monetary sovereignty are created by the possible issuance of “global” stablecoins with a large scale and reach. In addition, the emergence of global stablecoins also raises challenges for other public policy objectives, such as the prevention of money laundering and terrorist financing, combatting fragmentation of payment services and lack of interoperability, and promoting competition. The adoption of distributed ledger technology (DLT) in financial market infrastructures could also recreate silos due to heterogeneous non-interoperable solutions, which could generate a risk of liquidity fragmentation in

interbank payments. Issues related to liquidity fragmentation would be most acute during times of financial stress, and hinder the smooth circulation of liquidity necessary to the handling of the situation by various entities, thereby potentially worsening financial crises. Such an evolution would collide with the central banks' commitment over the last few decades to integrated financial markets and efforts to maximise the availability of liquidity.

### 1.3 What are the challenges for overseers?

The risks associated with payments and markets infrastructures have always evolved, over time and, so far, overseers have been able to smoothly and regularly adapt their framework and tools as needed. Dealing with an evolutionary environment is, in a way, in their DNA. But the disruptions we might be witnessing can challenge these framework and tools in new ways. Let me mention here three issues which might deserve special attention going forward:

- First, the balance between the public policy objectives of efficiency and safety. This balance may become more difficult to maintain, explain and impose, when faced with innovations whose possible strong benefits in terms of efficiency may come at the price of more exposure of the payment and settlement ecosystem to destabilising risks and loss of sovereignty. This may expose overseers to criticism of conservatism and bias regarding innovation: firstly, in favour of “old” technologies which have proved their robustness but might not be in tune with new developments; and secondly, in favour of well-established and regulated incumbents.
- Second, the appropriate scope of oversight activities. The increasing complexity of the payment and settlement ecosystem, the growing importance and concentration of third-party service providers and the pace at which changes are taking place requires the development of a flexible and extensive approach to the relevance of the components of the payment and settlement ecosystem to the broad public policy objectives of safety and efficiency pursued by oversight activities.
- Third, the powers and capacity to carry out oversight responsibilities effectively. Big tech may not only disrupt the business model and the value chain of payments, but is also made up of entities which, because of their size and/or of the way they are organised, may render the application of rules or overseers' expectations based on moral suasion more difficult.

## 2 How to adapt oversight activities to the challenges of the new payment and settlement landscape?

In the context described above, central banks should benefit by continuing to adhere to the principles that have inspired their framework for conducting oversight activities over the last decades: transparency of oversight policies, reliance on international standards (where available), effective powers and capacity to perform oversight activities effectively, consistent application across payment and settlement systems, cooperation with other central banks and other relevant authorities. Such principles remain appropriate to meet the challenges raised by the evolving payment and settlement landscape. How these principles are implemented may need to be further developed in the two directions discussed below though, to ensure their effectiveness.

### 2.1 Leveraging the cooperation between authorities

Cooperation between authorities is by no means a new tool. However, the growing interconnections and interdependencies between market places – mainly through the possible development of prominent third-party service providers or private infrastructures working as closed-circuit systems – make the building of trust and cooperation between overseers more critical than ever in ensuring that, both in normal times and in crises, the necessary steps are taken on a global scale. The momentum in this field must be preserved over time and can benefit from such initiatives as the publication, in 2019, of a compilation of authorities' experiences with cooperation ("Responsibility E" of the PMFIs). The same holds true with macro-prudential authorities and the ambition of introducing new frameworks (or enhancing existing ones) as well as tools aimed at limiting systemic risk. The work already done in this regard by the Financial Stability Board (FSB) – on an international scale – and by the European Systemic Risk Board (ESRB) – in Europe – has been pivotal and needs to be consolidated in the future.

### 2.2 Developing an "augmented" oversight approach which would have three major aims:

#### 2.2.1 Complementing the regulatory answer

In the field of payments in particular, the European regulation is made up of several elements designed according to a "product/service-based" approach, which represents a form of regulatory fragmentation while the borders of the different categories tends to blur.

For instance, the Commission's recent proposal for the regulation of crypto-assets (MiCA), is an essential step toward the enhancement of the rules and the delineation of the types of actors the latter will apply to, be they issuers of "asset-referenced

tokens” or of “e-money tokens”. But it may also foster the risk of arbitrations of market players with existing regulations (such as the e-money Directive) in case of unequal requirements. The extent to which this future regulation should be accompanied by an evolution of the oversight approach which might limit such risk, and how, will have to be dealt with.

As a first answer, the European Central Bank already intends to introduce an innovative payment oversight framework for electronic payment instruments, schemes and arrangements (the PISA framework). This future framework, still under consultation, reviews some of our oversight tools and responds to the various technological and market changes by redefining the scope of our oversight activity and providing a futureproof, harmonised and proportional framework inspired by the principle of “same business, same risks, same rules”. This new approach to oversight should help to better handle the issues raised by stablecoins.

### 2.2.2 Integrating the oversight function

The oversight function remains traditionally split according to the nature of the entities and services that are being overseen, which reflects the stacking of sectorial regulations: central securities depositories, central counterparties, trade repositories, payment systems (systemic or not), payment schemes and arrangements.

In light of the analysis displayed above, we may need an integrated oversight approach: considering the circulation of money as a whole and taking into consideration the diversity of technologies and services, in order to ensure that the set of common principles applicable to the market stays appropriate. This could be done for instance in two ways: first, by diversifying the experience and profiles of overseers, developing common analytical tools, an advanced technological watch in cooperation with market participants, international cooperation (with the Bank for International Settlements (BIS), the International Organization of Securities Commissions (IOSCO), the Financial Stability Board (FSB), etc.); second by strengthening cooperation with other authorities (via Memoranda of Understanding, multi-authorities supervision committees, etc.) and sharing the experience and market trend analyses on horizontal themes such as security of retail payments (e.g. on regulatory frameworks, data protection issues, cyber information and intelligence, etc.).

### 2.2.3 Using new tools and experiments

In the field of payments, market players increasingly rely on data analysis and artificial intelligence to automate their processes. In particular, the race for immediacy and user-friendliness pushes them to exploit payments data and to implement innovative tools in order to detect fraudulent transactions.

These technologies also have interesting use cases with regard to the oversight function. Indeed, these tools can, for instance help public authorities to improve on-

site and off-site verifications by combining human and automated controls. Furthermore, artificial intelligence already has proven applications in terms of predictive simulations and readability of the regulation. Henceforth, overseers face the challenge of building such technical capabilities while limiting associated risks (e.g. accountability, bias, risk amplification, etc.).

As a way to develop the necessary in-depth understanding of innovation, the central banks' oversight function can also greatly benefit from experimental activities. There are different approaches in this regard, but the conducting of experiments is pivotal. Those carried out by the Banque de France on wholesale central bank digital currency and those of the Eurosystem on a possible digital euro, pursue concrete objectives from a payment policy and payment system operator perspective, but are also useful to identify risks that will have to be addressed from an oversight perspective.

If it is premature at this stage to provide some indications on where this could lead us to, it can already be stated that the growing digitalisation of money encourages overseers to adapt their practices. On the one hand, they need to reaffirm their support for innovative methods and remain open to external ideas, in order to benefit from cross-fertilisation with academics and other supervisory authorities. On the other hand, they need to foster the development of specialised human resources and to facilitate the exchange of knowledge, notably on cutting-edge topics such as data science and artificial intelligence.

### 3 Conclusion

The oversight function has already demonstrated its capability to adapt to a rapidly evolving environment and has proved effective as a central bank activity to foster financial stability.

To preserve this effectiveness, oversight activities will need to adapt to a fast-changing payment and settlement landscape. Its legitimacy in the longer term will certainly be conditioned by its transparency, its ability to cooperate and to adopt innovative approaches and the tools it has available; beyond its commitment to the promotion of efficiency and safety of payment and settlement systems.

# Chapter 4 – The future of cross-border payments

Prepared by Jon Cunliffe<sup>1</sup>

## 1 Introduction

“Money is a social convention where one party accepts it as payment in the expectation that others will do so too. Over the ages, various forms of private money have come and gone, giving way to central bank money.”

Isabel Schnabel and Hyun Song Shin (2018). “[Money and trust: lessons from the 1620s for money in the digital age.](#)” (February)

Four mulberry trees grow in the Bank of England garden courtyard. They are a reminder of the origins of paper money, which was invented in China as early as the seventh century, where Merchants seeking to avoid carrying around heavy iron coins began issues IOUs written on mulberry bark. The state eventually outlawed private IOUs and banned counterfeit – and so not only was the first state-backed currency born, but the first example of public and private sector collaboration in payments. The practice of paper money did not become widespread in Europe for almost another thousand years. From then until the beginning of the twentieth century payments were manual, involving the physical exchange of tokens or the book entry of obligations by hand.

The 20th century has seen huge technological advances, much of which has been adopted for use in payments. In the 1970s and 80s the first electronic systems for payments messaging began, and the 1990s and 2000s have brought the first wave of true digitalisation of payments, with fully electronic end-to-end infrastructure.<sup>2</sup> By the end of 2015, at least 17 jurisdictions representing 45 per cent of global payment flows went live with ‘faster payments’ retail payment infrastructure and were actively pursuing modernization. More recently, in the past five years, there is strong evidence of new wave of change in electronic payments, with the emergence of new challengers and non-bank PSPs with innovative payment models, growth in instant payments and renewal of existing infrastructures, open Banking and ISO20022, and even new infrastructure projects based on blockchain.

However, adapting this ever-evolving technology for use in payments can mean a lack of standardisation or overarching design in the payments ecosystem, and often leaves less economically developed nations behind. Digital payment system designs have replicated the paper-based business processes of the systems they replaced,

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<sup>1</sup> Sir Jon Cunliffe is the Deputy Governor of the Bank of England and the Chairman of the CPMI since December 2019.

<sup>2</sup> CHAPS, CREST, FPS and Bacs in UK.

with low levels of automation, and business processes have adapted to low quality and perfunctory data. There are high barriers to entry for new payment system providers, this lack of competition has meant progress has been slower. Newer technology and innovation, which could quickly become globally systemic needs well thought through standards and oversight so that they enhance financial stability rather than endanger it, and people can be confident in the money they use.

Domestic payment systems have been able to incorporate new technology more seamlessly over the past 20 years, but cross-border payments are still largely perceived to be slow, expensive, opaque and difficult to access in some countries. To fix these challenges it will need commitment at a political level as well as cooperation internationally across both the public and private sector. Fortunately, the improvements in domestic payment systems, and the development of new proposals involving radically different technologies, have pushed the cross-border payments issue up the political agenda. As a result, at the end of 2019, the G20 tasked the Financial Stability Board, working with the Committee on Payments and Market Infrastructures, to deliver a roadmap to improve cross-border payments. This work has meant identifying challenges to overcome in cross-border payments, the causes of these challenges and potential solutions.

## 2 Challenges to overcome

Cross-border payments lag behind domestic ones in four key areas, they are slower, more expensive, less transparent, and inaccessible to certain customers:

Speed involves the processing time from end-to-end, that is, from when the ordering customer initiates the payment until the account of the beneficiary is credited.

Processing time is influenced by factors such as dispute resolutions, reconciliations and searches, possible slow processes for funding and defunding, daily cut-off times and closing times, as well as anti-money laundering and countering the financing of terrorism (AML/CFT) checks. Low speed increases uncertainty, liquidity and credit risk, and thereby negatively impacts business and investments, in particular where payments are time-critical.

Costs include transaction and account fees, compliance costs, FX conversion rate mark-ups and liquidity costs for prefunding. High costs lead to reduced demand for cross-border payments, hampers international business and may deter individuals from making cross-border payments altogether, exacerbating financial inclusion. These costs are often highest for remittance payments, where people working abroad send money back home. Remittances are a critical source of financing for people in developing countries and can make up more than 20% of some countries' GDP. These payment corridors can suffer from the highest frictions, such as volatile currency, legacy technology and de-risking, meaning that the average cost of sending a \$200 remittance payment is 6.82%, well above the UN Sustainable Development Goal target of 3% by 2030.<sup>3</sup>

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<sup>3</sup> [Remittance Prices Worldwide](#).

Limited transparency about fees and ease of tracking the payment status along the payment chain interacts with the challenges of costs and speed to add to the uncertainty and risks associated with cross-border payments. Lack of information about the speed, fees and FX rates impacts business service levels and leads to hedging and insurance costs.

Limitations for SMEs and individuals in accessing services and for PSPs in accessing payment systems aggravate financial exclusion and push customers toward inefficient, costly or even illicit third-party payment services. This in turn increases financial integrity and terrorist financing risks.

There is no single solution to enhancing cross-border payments. The four challenges listed above affect end-users, payment service and infrastructure providers in different ways and will require engagement from a range of different public authorities. The problem is multi-dimensional, and includes a range of end-users, service providers and arrangements:

End-users range from corporates and SMEs to private individuals.

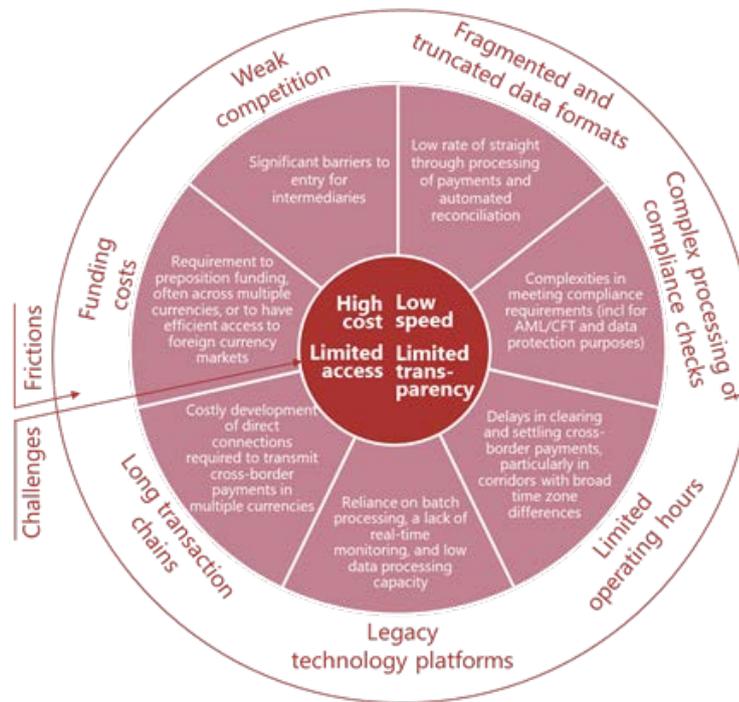
Service providers comprise banks and non-banks (bigtechs, fintechs, traditional money transfer operators and post offices). Payment infrastructure providers include payment system operators (private sector operators and central banks), global transaction banks offering correspondent banking services, and critical service providers (e.g. messaging networks).

Arrangements include correspondent banking, links between domestic systems, international card schemes as well as multilateral platforms (regional or global ones) and new peer-to-peer models (e.g. based on cryptoassets or stablecoins).

The ideal cross-border payments initiative would mitigate all four challenges for a large share of the above stakeholders.

Figure 1 provides an overview of the challenges and frictions to overcome in cross-border payments.

**Figure 1**  
Challenges and frictions in cross-border payments



Source: CPMI (2020): Enhancing cross-border payments: building blocks of a global roadmap.

Currencies are closed-loop systems. Domestic payment systems are not directly connected with the systems of other countries so when making a transfer between two jurisdictions, the currency is not physically transferred overseas.

Instead, international banks provide accounts for foreign counterparts and have their own accounts with their foreign counterparts, which enable banks to make payments in foreign currency. The funds are not sent across borders; instead accounts are credited in one jurisdiction and debited the corresponding amount in the other. While other payment providers such as Fintechs and money transfer agents centrally net their transactions across their own platforms to drive efficiencies, they still utilise this interbank network to provide payment services to businesses and individuals.

However, not every bank has a direct relationship, so sometimes they need to transact via an intermediary, a 'correspondent' bank. This is a bank which provides accounts for banks if they do not have a direct relationship with each other. This is known as correspondent banking and is an essential component of the global payment system for cross-border transactions.

## 3 Causes

To address the challenges listed above, we need to understand the frictions that cause them. These frictions include fragmented data standards or lack of interoperability; complexities in meeting compliance requirements, including for (AML/CFT), and data protection purposes; different operating hours across different time zones; legacy technology platforms; funding costs; weak competition and to some extent the length of transaction chains, see Figure 1.

**Fragmented and truncated data formats:** Each intermediary in a cross-border payment chain uses message data to validate the identity of parties to the payment and confirm its legitimacy. Although improvements are ongoing, data standards and formats still vary across jurisdictions, infrastructures and message networks, and the data carried in most cross border messages are limited. This hinders the accurate and complete transmission of information about a transaction and prevents “straight-through processing” and automated reconciliation. This leads to delays in processing and increases technology and staffing costs.

**Complex processing of compliance checks:** regulatory regimes for AML/CFT and sanctions screening are unevenly implemented across countries, which increases the complexity of validating the legitimacy of a cross-border payment. Intermediaries along the payment chain may perform similar compliance checks several times for the same transaction to ensure that they do not expose themselves to illicit finance. Different stakeholders might use diverging sanction lists and other databases to conduct their checks and the information used may contain errors. These problems make compliance checks more costly to design, hamper automation and potentially lead to significant delays or the rejection of payments. The problems are also more marked for transactions passing through high-risk payment corridors.

**Limited operating hours:** payment service providers and infrastructures are only able to process payments and pass information along the payment chain during their operating hours. Large-value payment systems and smaller banks, often the beneficiary banks at the last-mile leg, typically only process payments during regular business hours and are rarely available over weekends. Even where extended hours have been implemented, this has often been done only for specific critical payments. This creates delays in clearing and settling cross-border payments. As a result, positions need to be funded for longer periods of time, driving up the overall cost of the transaction.

**Legacy technology platforms:** Many cross-border payments travel through legacy platforms with a domestic focus. Such platforms were built when paper-based payment processes were first migrated to electronic systems and have fundamental limitations, such as a reliance on batch processing, a lack of real-time monitoring, and low data processing capacity. For example, cross-border payment systems still use message formats developed 100 years ago for the telex machine. These limitations hinder automation of payment transmission and cause delays in settlement and inefficiencies in liquidity management on a domestic level, but are worsened when legacy infrastructures need to interact with each other across

borders. The requirement to interface with legacy technology may also present a significant barrier to entry for new payment service providers.

**Funding costs:** the parties to cross-border payment often need to preposition funding, likely across multiple currencies, or to have efficient access to foreign currency markets. These open liquidity positions carry credit risk and often have a capital regulatory charge attached. The uncertainty about when incoming funds will be received often leads to overfunding of positions, which increases costs. Funding costs are typically higher for transactions in illiquid currencies.

**Long transaction chains:** as it is costly to maintain the direct connections required to offer cross-border payment services in multiple currencies, long chains of linked correspondent institutions arise under certain circumstances, particularly for payments in illiquid currencies. This is even the case for single-platform systems which need to rebalance their positions held in different currencies from time to time by using traditional correspondent banking channels. Longer transaction chains increase costs, delays and the potential for unpredictable fees to be incurred along the chain thus decreasing transparency.

**Weak competition:** the above frictions create barriers to entry for cross-border payment service providers. Informational frictions and the complexity of the cost structure of cross border payments also make it difficult for senders to accurately assess the cost of initiating a payment. These barriers can increase prices for end-users and intermediaries and dampen investment in modernising cross-border payments processes.

## 4 Solutions

Many of these challenges have been on the agenda of international bodies and standard setters (such as the CPMI) for a number of years and some progress has been made. International remittances, for example, have been brought into focus by the CPMI and the World Bank in 2007 with the [General principles for international remittance services](#)<sup>4</sup>. This sparked a sustained and pronounced focus on reducing the cost of international remittance costs, reducing the average costs by around 4 percentage points.<sup>5</sup> However, the current remittance prices are still above the G20 and UN targets<sup>6</sup>. One of the lessons learned based on past experience is that enhancing cross-border payments is a complex and multi-dimensional problem, and it requires the combined efforts of many public and private sector stakeholders.

Given the economic and the social costs of the current situation, the G20 has made enhancing cross-border payments a priority. G20 Finance Ministers and Central Bank Governors tasked the Financial Stability Board (FSB), in coordination with the CPMI and other bodies, with developing a roadmap to address the frictions and

<sup>4</sup> CPSS-World Bank (2007): [General principles for international remittance services \(bis.org\)](#).

<sup>5</sup> While the average cost of sending \$200 stood at close to 10% a decade ago, it was 6.51% in Q4 2020. [Remittance Prices Worldwide \(worldbank.org\)](#).

<sup>6</sup> G20 commitment made in 2011 is to reduce the end user cost to 5% and the UN Sustainable Development Goal (SDG) target is 3% by 2030.

limitations of the current system and make a step change improvement in cross border payment services.

The CPMI led the development of the building blocks to improve the current global cross-border payment arrangements. These building blocks set out areas where further work could assist in moving to an improved cross-border payment system and removing unnecessary barriers and form the basis of the G20 roadmap to enhance cross-border payments. The resulting 19 building blocks follow a holistic approach and cover both retail and wholesale payments (see Figure 2).

While each of the building blocks individually has the ability to bring benefits to cross-border payments, due to their interdependencies the most significant enhancements are likely to arise if over time they are all advanced and implemented in a coordinated manner. Each of the building blocks focuses on a specific area where carefully planned and implemented changes would help to mitigate one or more of the seven cross-border payment frictions. The 19 building blocks are arranged into five focus areas, four of which (focus areas A to D) seek to enhance the existing payment ecosystem, while focus area E is more exploratory and covers emerging payment infrastructures and arrangements. Figure 2 provides an overview of these building block and their grouping into focus areas, which are described in more detail in the following passage, based on CPMI (2020):<sup>7</sup>

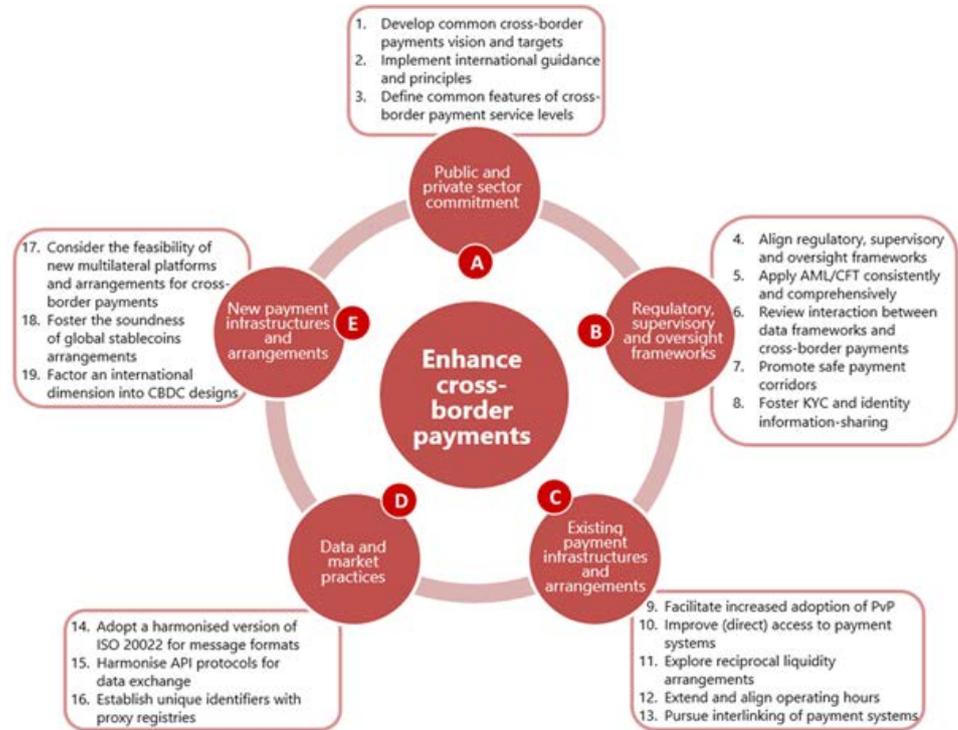
Commit to a joint public and private sector vision to enhance cross-border payments (focus area A): Much of the complexity in addressing frictions in cross-border payments arises from the many stakeholders from the public and private sector. The building blocks within this focus area are intended to act as a commitment mechanism to drive meaningful, coordinated change at the global level over a sustained period of time. A common vision and agreed targets can encourage a wide range of policymakers and market participants to work towards enhancing cross-border payments. Implementing international guidance and principles relevant for cross-border payments and defining common features of cross-border payment service levels will require sustained public and private sector commitment. This focus area is targeted, in particular, towards frictions where complex political, regulatory and (to a lesser extent) operational issues are prevalent.

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<sup>7</sup> CPMI (2020): Enhancing cross-border payments: building blocks of a global roadmap.

**Figure 2**

Overview of the focus areas and associated building blocks



Source: CPMI (2020): Enhancing cross-border payments: building blocks of a global roadmap.

Coordinate on regulatory, supervisory and oversight frameworks (focus area B): The building blocks in this focus area are intended to mitigate key challenges arising from the multijurisdictional nature of cross-border payments, by advancing consistent international rules and standards without compromising individual jurisdictional discretion or lowering standards. Much of the focus for removing frictions in cross-border payments has typically been on technology and operations. However, it is important to note that divergent regulation, legislation, supervision and oversight frameworks across jurisdictions can limit the benefits that may be derived from such initiatives. Similarly, it is important to identify the gaps in these frameworks, such as the supervisory standards of non-bank remittance firms. In advancing consistent, relevant international rules and standards and supporting their local transposition, the building blocks in this focus area can target frictions around complex compliance requirements and weak competition.

Improve existing payment infrastructures and arrangements to support the requirements of the cross-border payments market (focus area C): The building blocks within this focus area centre on technical and operational improvements to existing domestic and international payment infrastructures that cross-border payments depend upon. Addressing these enables frictions resulting from different operating hours, long transaction chains, high funding costs, access regimes and weak competition to be tackled. The building blocks do not require every system to be the same, but target specific areas where benefits can arise from carefully implemented and coordinated changes. This could include enhancing functionalities of existing systems, aligning processes and operating hours across systems,

introducing reciprocal liquidity arrangements, and interlinking existing payment systems. Such changes are likely to require the support of the domestic and international regulatory and legislative changes proposed in focus areas A and B.

Increase data quality and straight through processing by enhancing data and market practices (focus area D): The building blocks in this focus area are aimed at maximising the positive impact of the technical, operational and regulatory process changes being advanced in focus areas A to C. Poor data quality and limited standardisation of data exchange make cross-border payments more complex to process, in turn affecting their speed, price and transparency. Promoting the adoption of common message formats, including conversion and mapping from legacy formats and the use of Legal Entity Identifiers and common protocols for data exchange, directly mitigates the friction around fragmented and truncated data. It also has the potential to improve compliance processes and address data handling issues.

Explore the potential role of new payment infrastructures and arrangements (focus area E): Recent advances in technology and innovation have created the potential for new payment infrastructures and arrangements that could be applied to cross-border payments. So far, these have not been implemented broadly; some are still in their design phase and others remain theoretical. Hence their potential to enhance cross-border payments cannot yet be fully assessed. The building blocks in this focus area are aimed at exploring the potential that new multilateral cross-border payment platforms and arrangements, central bank digital currencies (CBDCs) and so called global “stablecoins” could offer for enhancing cross-border payments. This focus area is more exploratory than the others and is likely to be on a longer trajectory. The potential benefit of the building blocks in this focus area will be enhanced by progressing focus areas A to D, which, in addition to enhancing the existing payments ecosystem, will remove barriers to the emergence of new cross-border payment infrastructures and arrangements.

The G20 roadmap (FSB (2020))<sup>8</sup> took the 19 building blocks across the five focus areas as the basis and sets out concrete actions, outlines which international bodies will lead the work, and also sets out individual timelines. These timelines can vary by region and building block, depending on the solution. Some solutions can be put in place quickly while others will take considerably longer. Pushing the frontiers of cross-border payments requires efforts from private and public sector alike. Private actors are working in various ways to improve cross-border payments and innovation in the private sector is encouraged. To make progress, improvements in traditional plumbing for cross-border payments are needed too – that will require joint public and private sectors efforts to enhance that infrastructure. Finally, for sustainable and strategic change in cross-border payments, central bank action is needed - on domestic and international level alike. Central banks have been a catalyst for change in their respective domestic payment systems for some decades now. There are a few examples on international level, where central banks induced important and long-lasting change. Central banks’ involvement is not limited to the catalyst role, but also encompasses the roles as operators and as overseer of central bank and

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<sup>8</sup> FSB (2020): [Enhancing Cross-border Payments: Stage 3 roadmap \(fsb.org\)](https://www.fsb.org/2020/04/enhancing-cross-border-payments-stage-3-roadmap/).

private sector operated payment systems and other financial market infrastructures. The roadmap sets out the actions and timelines for the next five years. The G20 will monitor progress on an annual basis and refine the roadmap as needed.

## 5 Conclusion

The international community is now taking the long overdue steps necessary to enhance cross-border payments and address the longstanding frictions within it. A comprehensive solution is greater than the sum of its parts. Although tackling individual problems and particular parts of the system can improve cross-border payments to some extent, tackling the problem comprehensively across all building blocks in a coordinated fashion is the only way to ensure the step change needed.

Complex multidimensional problems require a programme of sustained effort over a number of years, by a partnership between the public and private sectors. The Italian G20 Presidency has it high on its agenda and the ongoing support of future G20 Presidencies is key.

Technology is moving quickly and while the public sector is working to improve cross-border payment regulation and infrastructure, private actors are simultaneously developing and utilising new technology to improve cross-border payments, which should be encouraged. While Innovation in the private sector is key, to have the maximum benefit, improvements of the underlying payments infrastructures, the traditional plumbing for cross-border payments, are needed to benefit traditional and innovative services alike. Both, the public and private sector, will need to enhance that infrastructure. The roadmap is not an attempt to impose one model, one central plan, on those improvements or to inhibit innovations, but to ensure that the public and private sector can complement each other to ensure the smooth functioning of cross-border payment systems.

Bringing cross-border payments into the 21st century, will require global cooperation of authorities and private sector stakeholders. It is a formidable challenge, but it is well worth taking up this challenge to pursue the social and economic benefits that they entail.

# Chapter 5 – Payments as a gateway for financial inclusion

Prepared by Massimo Cirasino<sup>1</sup>

## 1 The importance of financial inclusion and the problem at hand

**Financial inclusion is a building block for poverty reduction and enhances opportunities for economic growth at the personal and country level.** Financial inclusion facilitates day-to-day living, and helps families and businesses plan for everything from long-term goals to unexpected emergencies. As account holders, people are more likely to use payment services and other financial products, such as savings, credit and insurance, start and expand businesses, invest in education or health, manage risk, and weather financial shocks, all of which can improve the overall quality of their lives.

**Financial inclusion may be defined as the capacity of having access to and using the type of financial services that meet the user's needs.** A small farmer, for example, might find the services of a money transfer operator or a mobile money account for person-to-person funds transfers sufficient to meet their specific needs at a certain point in time. In contrast, the person next door to them may operate a small business and need a larger variety of financial services, such as the ability to accept non-cash payments from customers, a savings or investment account in which to deposit the proceeds of the business and probably even a form of credit. While the need for and use of financial services by the latter may be higher than that of their neighbour, this rather simple conceptualisation of financial inclusion would regard both households as “financially included”. The real needs for financial services of individuals, businesses and public administrations are, however, likely to be higher than is apparent from the actual use of a specific financial service at a given point in time. In addition, those needs tend to change over time. In this sense, **a desirable steady state for financial inclusion would entail universal access to a wide range of financial services that could be used as and when needed. Beyond achieving access, there is also the key issue of whether a financial service is**

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<sup>1</sup> Massimo Cirasino is a Global Adviser on Payments and Market Infrastructures, and founder and CEO of the Payment System Academy. He led the World Bank Payments System Development Group from 2004 to 2017.

This chapter is based on the many years spent by the author, Massimo Cirasino, participating in and leading global and country efforts to improve financial inclusion and access. In particular, Massimo was one of the founders of the Universal Financial Access Initiative of the World Bank Group (WBG) and the Co-Chair of the Committee on Payments and Market Infrastructures-World Bank Task Force on the Payment Aspects of Financial Inclusion (until December 2017). In addition, Massimo has participated in many G7, G8 and G20 meetings on Financial Inclusion and was one of the representatives of the WBG in the Global Partnership for Financial Inclusion (GPII). Finally, Massimo has managed the Financial Infrastructure and Access team of the WBG for many years, participating directly in many of the team's regional and country interventions. These experiences are summarised in this chapter, by referring extensively to the many reports prepared in the above contexts.

actually valuable to its users, which is very often reflected in how frequently that service is used.

Using the most recent global data from 2017 (see Box 1), while 1.2 billion people have opened a financial account since 2011, there are still an estimated 1.7 billion (31%) of adults worldwide who don't have a basic transaction account, the entry point to a wide range of financial services. "Transaction accounts" are broadly defined as accounts held with banks or other authorised and/or regulated service providers (including non-banks), which can be used to make and receive payments. Transaction accounts include both deposit transaction accounts and e-money accounts. Globally, two-thirds of adults without an account cite a lack of money as a key reason, which implies that financial services are not yet affordable or designed to fit low-income users. Other barriers to opening an account include: distance from a financial service provider, lack of necessary documentation papers and lack of trust in financial service providers.

### Box 1

#### The Global Findex Database

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The Global Findex database is the world's most comprehensive data set on how adults save, borrow, make payments, and manage risk through financial instruments. Launched with funding from the Bill & Melinda Gates Foundation, the database has been published every three years since 2011. The data are collected in partnership with Gallup, Inc., through nationally representative surveys of more than 150,000 adults in over 140 economies. The 2017 edition includes updated indicators on access to, and use of, formal and informal financial services. It also provides new data on the take up of financial technology (fintech), including the use of mobile phones and the internet to conduct financial transactions.

Financial inclusion is on the rise globally. The 2017 Global Findex database shows that 1.2 billion adults have obtained an account since 2011, including 515 million since 2014. Between 2014 and 2017, the share of adults who have an account with a financial institution or through a mobile money service rose globally from 62% to 69%. In developing economies, the share rose from 54% to 63%. Yet, women in developing economies remain 9 percentage points less likely than men to have a bank account. This third edition of the database points to advances in digital technology that are key to closing the gap in financial inclusion.

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## 2 Closing the gap: global initiatives to foster financial access and inclusion

Over the last decade or so, many national authorities have engaged in efforts to improve financial inclusion in their respective countries. National and international organisations have been contributing to these efforts through various means, by collecting experiences, developing specific knowledge and providing guidance, among other activities. Below are only some of the many initiatives undertaken around financial access and inclusion.<sup>2</sup>

### 2.1 G20 initiatives

In September 2009, G20 leaders presented a “Framework for Strong, Sustainable and Balanced Growth”, which included a commitment “to support the safe and sound spread of new modes of financial service delivery capable of reaching the poor and, building on the example of microfinance, will scale up the successful models of small and medium-sized enterprise (SME) financing”. In order to take this commitment forward, the G20 Financial Inclusion Experts Group (FIEG) was formed to identify lessons learned from innovative approaches to providing financial services, promote successful regulatory and policy approaches, and elaborate standards on financial access, financial literacy and consumer protection. The FIEG developed the G20 Principles for Innovative Financial Inclusion, which were endorsed by leaders at the Toronto Summit in 2010.

**In 2010, the G20 also endorsed a Financial Inclusion Action Plan (FIAP) and established the Global Partnership for Financial Inclusion (GPFI) to coordinate and implement FIAP.** FIAP was updated at the 2014 G20 Leaders’ Summit in Brisbane and includes the following action areas: (i) implementing the G20 Principles for Innovative Financial Inclusion under a shared vision of universal access; (ii) improving data; (iii) supporting capacity-building and training; and (iv) improving national, regional and international coordination.

Since the launch of FIAP, successive G20 presidencies have endorsed its key components and added commitments on financial education and financial consumer protection, financial services for vulnerable groups (including women and young people), expanding opportunities for innovative technologies to advance financial inclusion, and reducing the cost of remittance transfers.

The GPFI implements FIAP and G20 commitments through various subgroups including: (i) Regulation and Standard-Setting Bodies (SSBs); (ii) SME Finance; and (iii) Financial Literacy and Consumer Protection (established in 2013). In 2014, the GPFI stepped up its efforts by launching a new subgroup for Markets and Payment Systems, which was tasked with advancing the commitment made by G20 Leaders in 2013, to “harness innovative mechanisms such as mobile instruments and

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<sup>2</sup> Sources for the following information are: the World Bank Group; the Better Than Cash Alliance; the Bill and Melinda Gates Foundation; the Committee for Payments and Market Infrastructures; and the Global Partnership for Financial Inclusion.

technology, especially in the remittances area”. The subgroup’s goal was to support utilisation of payment systems, including remittances, in the pursuit of increased and sustainable financial inclusion. A key input into this analysis was the World Bank Group’s Report on G20 Remittance Commitments, published in early 2014. In this context, the subgroup initially focused primarily on actions related to remittances, specifically to meet existing G20 commitments to reduce the cost of sending remittances.

**In 2017, the G20 committed to advance financial inclusion worldwide and drafted the G20 High-Level Principles for Digital Financial Inclusion**, which the WBG helped develop under the China G20 Presidency leadership in 2016. The eight High-Level Principles encouraged governments to promote a digital approach to financial inclusion and have been used as a reference tool by many countries. In more recent years, the G20 and the GPFI have continued to work towards the meeting of the common objectives in this area.

## 2.2 Universal Financial Access 2020

**In late 2013, the then President of the WBG, Dr Jim Yong Kim, set a goal of achieving Universal Financial Access (UFA) by 2020.** The UFA goal was explicitly defined as “universal ownership of a store-of-value transaction account”. The “UFA2020 initiative” envisions that adults worldwide – women and men alike – will be able to have access to a transaction account or an electronic instrument to store money, send payments and receive deposits as a basic building block to manage their financial lives. The initiative explicitly states that access to the ownership and usage of a transaction/payment account is a fundamental step towards broader financial inclusion and calls for an increasing attention of the global community, regional and national authorities and market players on the achievement of this first important objective.

In order to achieve this goal, the WBG scaled up its investment, financial, advisory, knowledge and convening resources, including through increased engagement with key partners in the private sector and donor community. In April 2015, a broad coalition of partners gathered for a flagship event at the World Bank headquarters to galvanise private sector investment and innovation to accelerate UFA, including through enabling policy and regulatory frameworks. The event brought together private sector leaders, government regulators and the UN Secretary-General Ban Ki-moon. At the event, the WBG President committed his organisation to enabling as many as one billion financially excluded adults to gain access to a transaction account. A broad range of coalition partners – including multilateral agencies, banks, credit unions, card networks, microfinance institutions and telecommunications companies – joined the WBG by issuing their own quantitative commitments to advancing the achievement of the UFA target.

Concrete UFA efforts include the identification of 25 target countries, heightened engagement on financial inclusion with these countries, the launch of efforts to foster alliances with large retailers and distributors, and the development of a set of

tracking and measurement tools to gauge progress and adjust course when needed. New data expected on 2020, will measure the progress towards the achievement of this global objective the methodology of which relies on the ongoing work of the Committee on Payments and Market Infrastructures (CPMI) at the Bank for International Settlements (BIS) and the WBG (see below).

### 3 The payment aspects of financial inclusion

**Payments and payment services are, in their own right, an important part of the overall package of financial services.** Moreover, under certain circumstances they can not only facilitate access to other financial services, but, in many cases, be critical to those services' efficient provision. In this context and as part of the broad efforts described above, in 2014, the CPMI and the WBG created a task force to analyse the role of payment systems and services in financial inclusion which culminated in the publication of its first report in 2016.<sup>3</sup>

**People worldwide have a need to make and receive payments in their daily lives. Banknotes and coins (“cash”) are one of the instruments available for this purpose.** Electronic payment services have been developed by banks and a variety of other payment service providers (PSPs) both to address the limitations of cash as a payment instrument and to provide new opportunities for increased speed, safety, convenience and other relevant features in a rapidly changing world. Most of these electronic payment services are based on an account which acts as the funding source for the corresponding payment or payments being made, and to which the funds from payments received are credited. In addition to payments, these accounts, referred to as “transaction accounts”, also offer the possibility of storing monetary value.<sup>4</sup>

**The wide adoption of transaction accounts will, from a payments perspective, have a number of important effects,** both for the individuals gaining access to financial services and for the country's national payments system<sup>5</sup>. Financial inclusion efforts therefore are not only beneficial for those that will become financially included, but also for the national payments infrastructure and, ultimately, the economy. As mentioned, transaction accounts can help individuals and businesses in managing their daily financial affairs. For this reason, transaction accounts are an essential financial service. Access, in the sense of having a transaction account and the ability to use it, is a precondition, but it does not guarantee actual usage of that account. At the core, regular usage of payment and other financial services is a

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<sup>3</sup> CPMI and World Bank Group (2016), *Payment Aspects of Financial Inclusion*, Bank for International Settlements, Basel, April. A consultative report was published in December 2015.

<sup>4</sup> All deposit accounts held with banks and other authorised deposit-taking financial institutions, (“deposit transaction accounts”) can be used for making and receiving payments qualify as transaction accounts. Prepaid instruments based on e-money, referred to as “e-money accounts”, can be offered by banks and other authorised deposit-taking financial institutions, as well as by authorised non-deposit-taking PSPs such as mobile network operators (MNOs). In this case, the payments function is often the key selling proposition, and they therefore also qualify as transaction accounts.

<sup>5</sup> The term “national payments system” encompasses all payment-related activities, processes, mechanisms, infrastructure, institutions and users in a country.

consequence of those services fulfilling customer needs as regards pricing, product features and physical and/or remote accessibility.

**While of utmost importance - as mentioned earlier - access to and usage of a transaction account to facilitate payments and to store value is just an initial step in becoming fully financially included, which involves having access to the whole range of financial products and services that meet the user's needs.**

For individuals, such things as credit, insurance, savings and investments are (together with transaction accounts) key elements of the overall package of financial services. In this regard, an additional noteworthy feature of transaction accounts is that some of them may, under certain circumstances, facilitate access to broader financial services. For example, often the underlying PSP itself provides some or even all of those other financial services, and by operating the transaction account, it can more easily obtain some of the key information it needs to offer those additional services, such as whether the customer has a regular income flow. At the same time, payment patterns of the holders of transaction accounts may be used to help in establishing a financial transaction profile of the end user. The transaction account can also play an important operational role in facilitating the repayment of loans and other financial services that are paid in instalments – for example, through the possibility of making a periodical direct debit to the account.

**Furthermore, broader adoption and usage of transaction accounts and in general higher levels of financial inclusion can positively affect a country's national payments system (NPS) from at least three perspectives.** First, continuous modernisation and improvement of payment systems and services requires significant upfront investments, and a crucial element to determine whether such investments are financially viable is the frequency or intensity with which the upgraded/new systems and services are expected to be used. Broader adoption and usage of transaction accounts increases the viability of such investments. Second, the channelling of larger volumes of payments through transaction accounts increases the overall efficiency of the NPS. Finally, payments-related legal reforms that originated in financial inclusion goals can also trigger positive developments for the NPS as a whole. All these positive effects can further improve conditions for access to and usage of transaction accounts, therefore resulting in a virtuous circle.

**On the other hand, multiple factors can adversely affect access to transaction accounts and their regular use.** The most relevant ones are:

**High fees and costs.** Opening and maintaining transaction accounts entails fixed costs for PSPs, such costs being largely independent of the number and size of payment transactions the customer makes. Consequently, in order to recover these costs, PSPs will often charge a fee which generally has little or no relation to the number and value of payment transactions entered into by account holders, although several pricing techniques are used across the world. Other relevant factors that can result in high fees include little competition in the market for payment services, including significant barriers to entry for new PSPs, underdeveloped basic infrastructure and high sunk costs (e.g. as a result of lack of interoperability of infrastructures).

**Low income levels of large segments of a country's population.** The negative impact of high fees is magnified for users with a low income. On the other hand, high per-transaction fees have a proportionately larger impact on small-value payments, which with few exceptions are the ones that low-income end users make. Hence, an important share of individuals, and micro-sized and small businesses may not be able to afford the costs of opening, maintaining and operating a transaction account.

**Economic and labour informality.** In all countries, there are users of payment services that choose not to have a transaction account even if they could afford the costs associated with it and do not face significant geographical challenges for access. In other words, they have excluded themselves voluntarily from having and using this financial service. The essence of the “self-excluded” is that they appear to have no incentives or need to operate through accounts or have had negative experience with regulated PSPs, and as a result they rely on cash and other types of payment service to satisfy their payment needs<sup>6</sup>. In practice, many of the self-excluded operate under conditions of economic informality, in particular labour informality. For example, avoiding the payment of taxes, other government charges and social security contributions is an important feature of informality, and reliance on cash serves this purpose especially well. Therefore, many of the individuals and businesses operating in informality will not want to have a transaction account.<sup>7</sup>

**Insufficient attention to gender-specific aspects, religious and cultural needs and beliefs, and limited awareness and financial literacy.** Other end users that have excluded themselves from using transaction accounts may have done so for other reasons, such as cultural or religious reasons. Gender can also play a significant role in preventing or deterring the adoption and use of transaction accounts. The most explicit form of gender bias exists in countries where social customs limit the financial independence and autonomy of women. More typically, however, the barriers are subtle and - in some cases - unintentional. In general, women and men differ in terms of risk aversion, rates of technology adoption, financial literacy and responsibilities at home, as observed by the 2015 G20 report on the economic participation of women.

Moreover, even in the presence of positive conditions for the uptake of transaction accounts, some individuals may not be aware of the options available to them and/or the potential benefits they may derive from using this financial service, or may lack the basic knowledge for applying for the service and/or using it. Furthermore, some individuals in this situation may fear being discriminated against if they were to approach PSPs (or certain types of them) or may fear being defrauded by PSPs if they were to acquire a transaction account service. **Lack of awareness and basic**

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<sup>6</sup> Others may actually satisfy those needs by using someone else's transaction account and may therefore not need an account of their own.

<sup>7</sup> In addition, the fact that these individuals and businesses rely exclusively (or almost exclusively) on cash for receiving and making payments – and for storing value – automatically reduces the overall extent to which non-cash payment instruments can be used as a means of payment in that community, region or country. This, in turn, reduces the value proposition of transaction accounts for all economic agents, including those that already have a transaction account. Labour informality – and economic informality more broadly – therefore not only reduces the demand for transaction accounts but also reduces their overall attractiveness to current and potential users, while at the same time raising the relative attractiveness of cash. The higher the prevalence of informality, the greater its undesirable effects on transaction accounts.

**financial literacy and capability on the part of some individuals** is therefore another obstacle to broader adoption and usage of transaction accounts.

**Transaction account/payment product design that fails to meet the needs of the different types of end users, and a perception on the part of users that transaction accounts are unsafe.** Collectively, the combination of features, or the design of the transaction account and associated payment services, determine whether that account meets most of the needs of actual or potential customers. The features that meet the needs of the more traditional bank client base may not meet the needs of individuals and businesses that currently do not have a transaction account. This is because many of the individuals and businesses currently excluded from this service tend to have lower and more variable incomes, live in financially isolated communities and/or are ill at ease with technology. Poor design of transaction accounts and the underlying payment services therefore also acts as a barrier to transaction account adoption, especially for the regular usage of such accounts.

**Customers' perception of transaction accounts being unsafe and/or that the payment services associated with them are unreliable.** Some end users may be deterred from storing value in transaction accounts and/or making and receiving payments through such accounts. This might be the result of past experiences in which these individuals or businesses suffered losses in their transaction accounts – for example, because the PSP went into bankruptcy, because of measures taken by country authorities (e.g. blocking customer funds or devaluing the funds on deposit) or because of fraud. In other cases, a lack of reliable availability of the payment access channel(s), whether in the form of branch offices, automated teller machines, point-of-sale terminals, PSP agents, etc., could lead end users to doubt the reliability of transaction accounts and to prefer to use cash instead.

**Addressing the barriers to transaction account access and usage, means enhancing the role of payments as a gateway to financial inclusion.** The seven guiding principles and underlying key actions proposed by the CPMI-WBG Task Force provide a useful framework to help achieve universal financial access and are directed at all relevant public and private sector stakeholders. In particular, they address the barriers represented by high direct and/or indirect costs of transactions accounts, lack of basic financial capability, poor design of transaction accounts and related payment services, and the perception that transaction accounts might be unsafe.<sup>8</sup>

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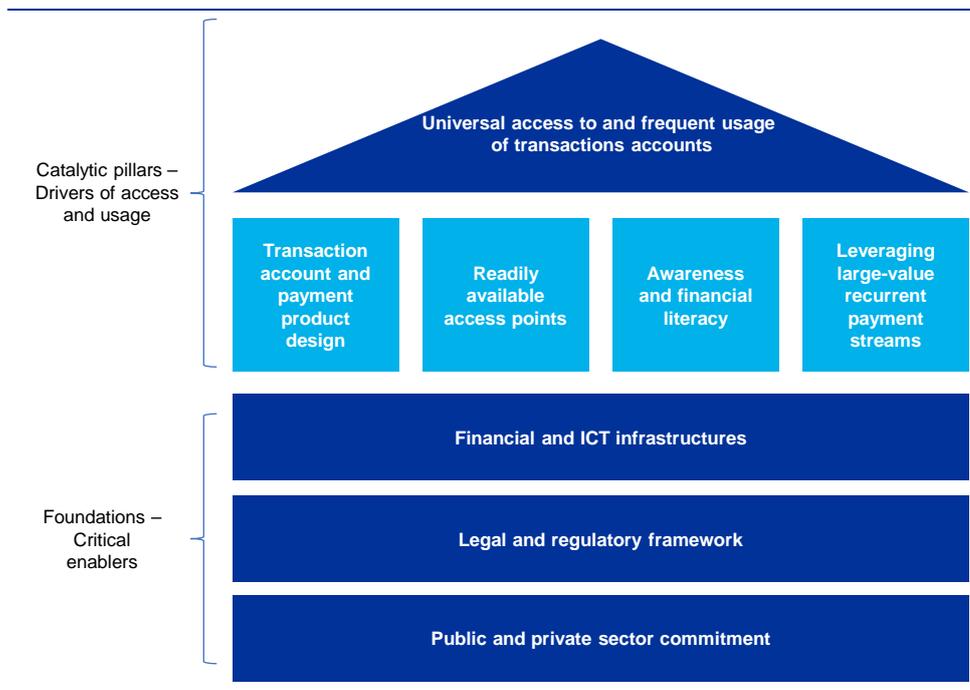
<sup>8</sup> Other identified barriers, such as the low-income level of a country's population and the high prevalence of labour (and broader economic) informality, fall outside the direct scope of financial sector authorities and other financial sector stakeholders, and therefore need to be addressed through broader policy efforts.

**Financial inclusion efforts undertaken from a payments angle should aim to achieve a number of objectives.** Ideally, all individuals and businesses should be able to have and use at least one transaction account operated by a regulated PSP:

- (i) to perform most, if not all, of their payment needs;
- (ii) to safely store some value;
- (iii) to serve as a gateway to other financial services.

**The core elements identified for these objectives to be achieved, are presented in the PAFI framework (the so called “PAFI House”) in Figure 1,** while the specific language of each of the guiding principles is presented in Box 2. These core elements are: (i) stakeholders’ commitment, the legal and regulatory framework, and the financial and ICT infrastructures, which constitute the foundations/critical enablers; and (ii) the transaction account and payment product design, readily available access points, financial literacy, and leveraging of large-volume and recurrent payment streams for financial inclusion objectives, which act as catalytic pillars/drivers to facilitate access to and promote wide usage of transaction accounts. The PAFI framework analyses how payment systems and services promote access to and use of financial services. It examines what elements of retail payments are critical to financial inclusion, and how improving the payments infrastructure and services could accelerate access to, and use of, transaction accounts. It also discusses the relevance and importance of measuring the effectiveness of financial inclusion efforts from a payments perspective.

**Figure 1**  
The PAFI Framework



## Box 2

### The PAFI Guiding Principles

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The PAFI framework outlines seven guiding principles and suggests key actions that countries could take to increase access to transaction accounts, which can then serve as a gateway to broader financial inclusion. The PAFI Guiding principles are stated in the form of the desired state for each topic.

Guiding principle 1: Public and private sector commitment. Commitment from public and private sector organisations to broaden financial inclusion is explicit, strong and sustained over time.

Guiding principle 2: Legal and regulatory framework. The legal and regulatory framework underpins financial inclusion by effectively addressing all relevant risks and by protecting consumers, while at the same time fostering innovation and competition.

Guiding principle 3: Financial and ICT infrastructures. Robust, safe, efficient and widely reachable financial and ICT infrastructures are effective for the provision of transaction accounts services, and also support the provision of broader financial services.

Guiding principle 4: Transaction account and payment product design. The transaction account and payment product offerings effectively meet a broad range of transaction needs of the target population, at little or no cost.

Guiding principle 5: Readily available access points. The usefulness of transaction accounts is augmented with a broad network of access points that also achieves wide geographical coverage, and by offering a variety of interoperable access channels.

Guiding principle 6: Awareness and financial literacy. Individuals gain knowledge, through awareness and financial literacy efforts, of the benefits of adopting transaction accounts, how to use those accounts effectively for payment and store-of-value purposes, and how to access other financial services.

Guiding principle 7: Large-volume, recurrent payment streams. Large-volume and recurrent payment streams, including remittances, are leveraged to advance financial inclusion objectives, namely by increasing the number of transaction accounts and stimulating the frequent usage of these accounts.

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## 4 The role of central banks in retail payments and financial inclusion

**The PAFI framework is intended to motivate and guide actions by both private and public sector players. In the public space, several authorities have a role to play in fostering financial inclusion, but central banks have a central importance in payments.** Central banks have a variety of roles, responsibilities and interests in fostering the safety and efficiency of the NPS, including for retail payment systems, services and payment instruments. More recently, accessibility and coverage, the effective protection of customers and the existence of a competitive

environment are also being considered as important objectives by many central banks. To fulfil these goals, central banks can use one or more of the following roles in retail payments: (i) an operational role, (ii) a catalyst role, and (iii) an overseer and/or regulator role.

In particular, in an operational role, the central bank typically provides settlement services for one or more retail payment systems in a country. In some countries, central banks also play a more direct operational role by operating a retail payment system. In their role as catalysts in retail payments, central banks maintain close relationships with commercial banks and other PSPs in order to discuss priorities with regard to improvements to payment systems and/or the development of new services, and to facilitate the materialisation of all such projects. In some countries, central banks have established and usually chair a so-called national payments council (NPC) that serves as a forum for multi-stakeholder consultations. With regard to oversight, not all central banks have explicit legal powers to oversee retail payment systems, payment services and related arrangements although a growing number of them report playing a key role in this area as well.<sup>9</sup> Central banks that do have such powers exercise this function through monitoring and assessing existing and proposed systems, services and payment instruments, and, if necessary, inducing change, including through the issuance of formal regulations. Many of the central banks that do not have explicit legal powers still monitor developments in retail payments through various tools – such as frequent dialogue with market participants and/or through an active research agenda in this field.

**Central banks' tradition of implementing significant financial sector reforms, and their ability to mobilise support and resources around these complex programmes, cannot be underestimated and puts the central bank in an ideal position to exercise its powers in the financial inclusion and access space as well.** For example, in recent years, central banks in many countries have played important roles in launching “fast” or “instant” payments initiatives, which offer immediate availability of funds to final beneficiaries often at little cost to users. Some central banks are also studying the possibility of introducing central bank digital currencies (CBDC) alongside their traditional issuance of physical cash. **Although these efforts cannot be seen as the panacea for financial inclusion, the special responsibility of the central bank to facilitate instant payments and, eventually, CBDC access to all, could push the financial inclusion agenda forward.**

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<sup>9</sup> According to the World Bank Global Payment System Survey 2020, central banks report that their oversight role has a broader scope, to also include retail payment systems in 87% of the cases, payment instruments in 81% of the cases, and other relevant payments systems like payment card schemes, switch operators, money transfer operators, etc. in 81% of the cases. Payment services are being increasingly overseen – reaching 78% globally but 100% in regions such as East Asia Pacific, South Asia and Sub-Saharan Africa.

## 5 Technology as an opportunity and a challenge for financial inclusion

### **The use of technology in finance presents both opportunities and challenges in improving financial inclusion through payments.**

As a recent CPMI-WBG report points out,<sup>10</sup> technology can be leveraged to improve payment products, make them ubiquitously accessible, enhance user experience and awareness, and achieve efficiency gains and lower market entry barriers. At the same time, these benefits come with certain risks in terms of operational and cyber resilience, the protection of customer funds, data protection and privacy, digital exclusion and market concentration. If not adequately managed, these risks could undermine financial inclusion outcomes. This underscores the importance of effective regulatory, oversight and supervision frameworks. In addition, particular attention should be devoted to promoting responsible innovation that does not exclude disadvantaged segments of the population, by encouraging designs that are tailored to the needs of these segments.

**In particular, technological innovation has made major inroads into financial services, especially payments.** The pace of innovation has substantially increased in the past five years, leading to the so called “era of fintech”. Fintech can be defined as advances in technology that have the potential to transform the provision of financial services, spurring the development of new business models, applications, processes and products. New technologies are at the core of fintech, which in turn has implications for payment product offerings and access modes.

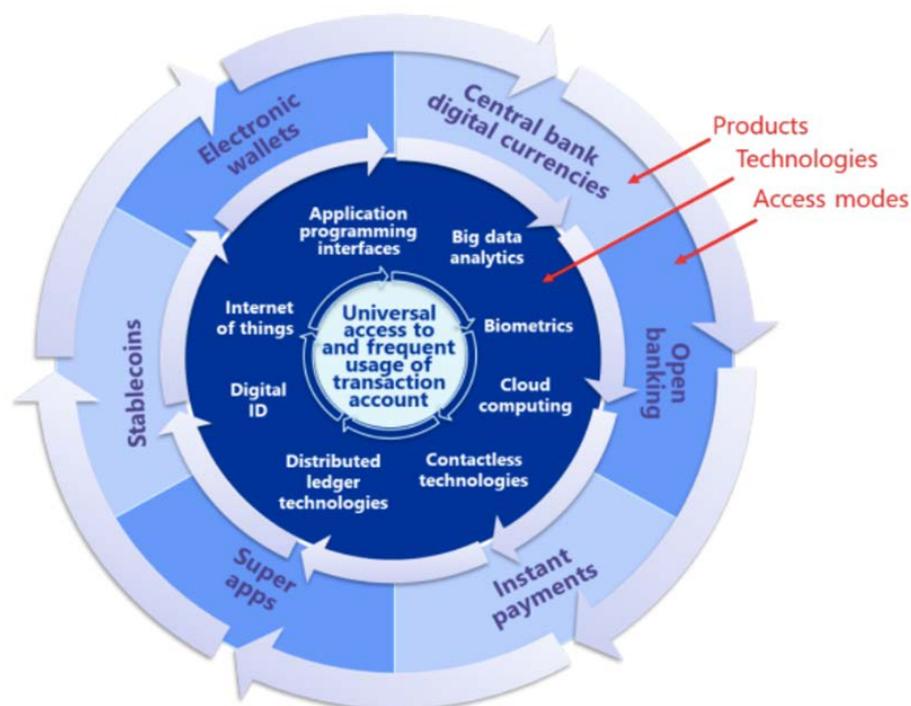
**Accordingly, as financial inclusion strategies seek to harness the benefits of fintech, it is equally important to address the attendant risks.** First, fintech developments call for increased international and cross-sectoral coordination, especially in the light of the cross-border and cross-currency nature of certain fintech innovations. Effective cooperation and coordination among central banks, financial supervisors, regulators and policymakers can help avoid potential regulatory arbitrage and promote effective oversight and supervision. Second, continued efforts by authorities to keep pace with innovation will help to avoid gaps in regulatory, supervisory and oversight frameworks, and to address challenges in their application to new business models. Finally, fintech developments have highlighted the opportunities and challenges of broadening PSPs’ access to payment infrastructures and the need to raise the bar for cyber resilience, and also created momentum for cross-border interoperability. The 2016 PAFI guidance for advancing financial inclusion through payments was formulated in a technology-neutral and holistic way, and continues to be relevant in the era of fintech. Stakeholders aiming to leverage the fintech potential in a responsible way for achieving the PAFI objectives can take further actions that seek to harness the potential of fintech, while mitigating its accompanying risks. The 2020 PAFI Task Force report sets out these fintech-focused key actions in the context of the 2016 PAFI guidance. The “PAFI fintech wheel” directs focus onto new technologies in the centre (Figure 2). These new

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<sup>10</sup> CPMI and World Bank Group (2020), Payment aspects of financial inclusion in the fintech era, Bank for International Settlements, Basel, April.

technologies are not indispensable for the product and access layer but are in many cases harnessed to improve the provision of these new products and access modes.

**Figure 2**  
The PAFI fintech wheel



## 6 Measuring progress towards universal financial access

To complement the guiding principles, since the publication of the PAFI framework, the CPMI-WBG Task Force has also stressed the importance of tracking progress in achieving the underlying financial inclusion goals. A strong consensus has emerged among the many institutions involved in financial inclusion efforts on the importance of implementing robust measurement methods for identifying obstacles, demonstrating results, efficiently allocating resources, and in general for making evidence-based policy decisions.

In this regard, many countries are already quantifying their national financial inclusion objectives and commitments and progress achieved to date. Notably, these efforts have yielded certain important by-products. For example, the process of designing a national measurement framework has often generated meaningful dialogue among and between public and private sector stakeholders on issues such as priorities, coordination and capacity. Likewise, the design of specific indicators and targets has proved useful for rallying stakeholders, creating accountability and reinforcing national policy objectives.

**In September 2020<sup>11</sup>, the PAFI Task Force published a set of application tools including an enhanced results framework.** This framework consists of a list of core indicators for each of the seven guiding principles and for each of the PAFI overarching objectives. The core indicators catalogue the data proposed for measuring the central elements of these principles and objectives. Some of the core indicators are publicly available and are directly accessible through databases maintained primarily by international institutions such as the WBG and the International Monetary Fund (IMF). However, other indicators have been developed specifically for PAFI (e.g. core indicators addressing qualitative aspects such as relevant laws, regulations and oversight frameworks). In these cases, the core indicators are generated from existing policy surveys, such as the WBG's Global Payment Systems Survey (GPSS) or the WBG's Global Financial Inclusion and Consumer Protection (FICP) survey.

**The core indicators are diverse in terms of form and unit of measurement.** For example, some are quantitative in nature, while others represent qualitative data that have been turned into binary indicators or ordinal scales. Likewise, in terms of units, the core indicators are reported as percentages, on a per capita basis or as composite scores. Combining related indicators into measurement metrics requires the indicators to be transformed into a common unit before being aggregated (i.e. requires normalisation). Once normalised, the indicators can be aggregated into a measurement index.

**Another useful tool is the so-called “PAFI radar”.** The PAFI radar utilises the core indicators of the PAFI results framework and the indexing methodology to visually depict a given country's status on the guiding principles. More specifically, it shows a country's status on each of the seven guiding principles relative to several benchmarks (i.e. other countries or cohort of countries). Nevertheless, the PAFI radar also allows to track country-level progress over time (i.e. against that country's own baseline scenario).

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<sup>11</sup> CPMI and World Bank Group (2020), Payment aspects of financial inclusion: application tools, Bank for International Settlements, Basel, September.

# Chapter 6 – Future challenges for central clearing

Prepared by Daniela Russo and Pietro Stecconi<sup>1</sup>

## 1 Introduction

Following the Great Financial Crisis (GFC) of 2007-09, a key component of the global regulatory reform agenda was the requirement to mandate central clearing for standardised derivatives, contained in the Pittsburgh declaration. These reforms have now been largely implemented and the central clearing industry is now very different from what it looked like before the GFC – including as a result of the implications of the reforms. However, in our opinion, this does not mean an end to the challenges facing central clearing stakeholders. Indeed, the rapid technological advances taking place in financial market infrastructures on a global basis (including central clearing), raise a number of overarching questions for central clearing stakeholders; ranging from governance-related issues to market structure implications.

Examples of these questions include the identification of the appropriate balance between the private incentives which shape the working of central counterparties (CCPs) and the public good they are meant to provide; or how to deal (from a regulatory or operational perspective) with the issues raised by a growing concentration in the provision of clearing services – both by CCPs and clearing members. Some issues are specific to the European landscape; such as the potentially far-reaching implications of Brexit.

These are just a few of the challenges central clearing stakeholders may be confronted with in the near future.

Two additional issues related to CCP risk management are currently being discussed at global level, within the Committee on Payments and Market Infrastructures (CPMI)-International Organization of Securities Commissions (IOSCO)-Financial Stability Board (FSB) framework: margin methodologies and adequacy of CCP financial resources in recovery and resolution. These issues are not addressed here, so as not to interfere with the work currently in progress. Instead, we prefer to focus on the three issues mentioned beforehand, on which less work has been conducted and less has been said so far, with a view to contributing to the debate on these issues.

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Finally, we do not specifically mention technological development as a challenge for CCP stakeholders, not because central clearing is not interested in innovation, but for a reason that is twofold. First, the evidence shows that technological innovation is attracting the attention of central clearing more slowly than other financial market infrastructure sectors (e.g. retail payment services or securities custody and settlement) and, second, we believe that the issues that central clearing may face from technological innovation are very similar to those of other kinds of financial market infrastructures.

## 2 The basic mechanics of CCPs and their role as the provider of a public good

In principle, the mechanics of central clearing is quite simple: a central counterparty (CCP) is a financial market infrastructure that stands between the counterparties to the contracts traded on one or more financial markets (becoming the buyer to every seller and the seller to every buyer) and protecting each one against the default of the other, by collecting appropriate guarantees (commonly referred to as “margins”) from them both. In this way, a CCP effectively guarantees the payment and/or delivery obligations arising from a contract. If one of the counterparties to a contract defaults, the other is insulated from the consequences of the failure, thanks to the CCP’s default management process, which relies on both the guarantees collected from the defaulting member and the sharing of any remaining losses among the non-defaulting ones. By centralising transactions on a given market, CCPs simplify the web of contractual relationships among market participants, thereby reducing the overall level of exposures and making the trading network more transparent.

From a systemic perspective, by interposing themselves between the counterparties to the trades (and/or their clearing members), CCPs become highly interconnected with all market participants acting in a given market; therefore, they represent crucial hubs in the network of financial markets’ contractual relationships. In extreme cases, a CCP’s bankruptcy, may have extremely negative externalities on their clearing members and the financial system as a whole, such as significant credit losses and liquidity shortages or dislocations. For this reason, CCPs are generally considered systemically important institutions, which must be subject to strict regulation, oversight and supervision, by central banks and securities regulators.

Historically, CCPs were founded as facilities that served (and were owned by) a restricted club of market participants and provided them with “club goods” such as trading anonymity, netting payment and the timely performance of settlement obligations. In this kind of organisational set-up, with CCPs, designed to achieve objectives of a private nature, there was a complete alignment of incentives between those parties who paid (in the form of capital provision, clearing fees and loss-distribution) for the CCP’s services and those who benefitted from the “goods” it produced.

Over time the basic mechanics of central clearing have not changed. What has changed is the role played by CCPs (or at least the largest ones) within the global

financial system and, more importantly, the public policy objective assigned to them by public authorities. The 2009 mandate to clear standardised over-the-counter (OTC) derivatives through CCPs, in essence implies their use as a macroprudential tool, aimed at helping to ensure financial stability (i.e. a public good).

With the reforms triggered by the GFC having been rolled out, exposures of banks and non-banks at CCPs have increased dramatically and, with them the collateral posted by CCPs' members to guarantee their exposures. In parallel, tensions have emerged over time between CCP owners, regulators and clearing members, in particular concerning the loss-sharing arrangements to be applied in the extremely unlikely, but not impossible, event of a CCP's failure.

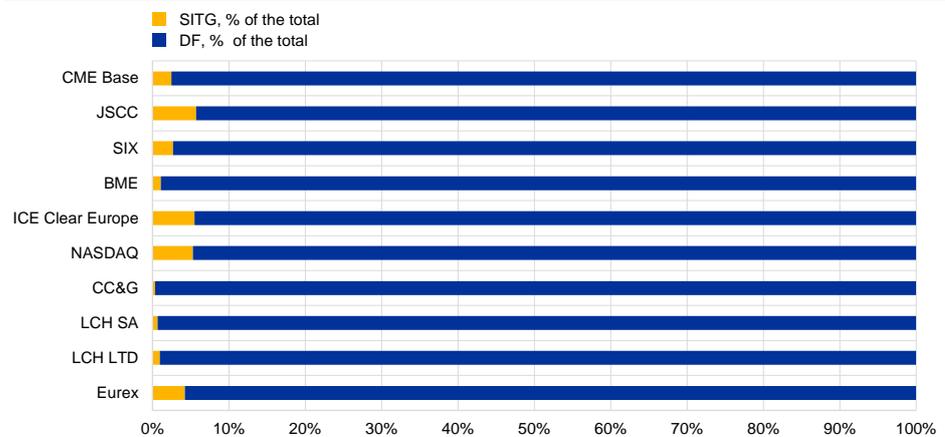
These tensions can be explained by a misalignment between the public policy goal assigned to CCPs (i.e. financial stability) and the private incentives behind the ownership and operation of CCPs as they currently exist. In most cases the design of CCPs – and their model for resource provision in particular – makes them suitable for managing “club goods”. Financial stability, however, is a “public good”, which allows all market participants to benefit from it. The key differences between these two types of goods, which drive a wedge between those who pay for them and those who derive the benefits, create the tensions observed among groups of different CCPs' stakeholders when discussing issues such as loss-sharing arrangements in CCPs recovery and resolution procedures (Murphy et al., 2019).

The current regulatory regime of CCPs already considers, of course, the coexistence of private and public policy objectives in the design and operation of CCPs and provides a number of solutions to accomplish an appropriate balance in the achievement of goals, which in some circumstances can conflict with one another. Perhaps the most important of these solutions is “skin in the game” (SIG): the part of a CCP's own capital that it must allocate to cover the losses stemming from a member's default (where the defaulter's margins are insufficient to do so), before using the resources provided by non-defaulting members.

SIG is meant to provide CCPs' owners and operators with a financial incentive to adopt a prudent approach when determining the margins which members have to post. As such, it is specifically included in the international discipline on financial market infrastructures (the Principles on Financial Market Infrastructures and related guidance) and in some jurisdictions, such as Europe, it is translated into specific minimum requirements. Recent research shows that higher SIG is significantly associated with prudent modelling (Huang and Takats, May 2020).

**Chart 1**

Skin in the game and default fund at selected CCPs



Source: Public disclosure framework, data fields 4.1.1 and 4.1.4, Q3 2020.

However, as Chart 1 shows, there is significant variability at international level; more importantly, most of the tensions referred to above, relate to the size and role played by SIG; with clearing members and buy-side representatives arguing that CCPs' owners should provide higher financial resources to demonstrate their commitment to underpinning financial stability.

Of course, the regulatory regime does not limit the combination of public policy objectives with the private ownership and operation of CCPs to SIG alone; other provisions relate to governance arrangements, whereby clearing members are admitted to participate in CCPs' risk committees and, in particular, to the remuneration of CCPs' key managers.

Assuming that in future, the role of central clearing within financial markets is destined to grow, what could be the appropriate response to the tension between public policy objectives and private incentives? A public utility would be an appropriate response? From this standpoint is central clearing an exception or does this question also concern other kinds of FMIs?

As the initial answer to these broad questions, we note that neither the actual evidence nor the economic literature shows that a public utility would be an appropriate response. In the current financial markets set up, CCPs often belong to groups of FMIs that collectively provide market participants with services which benefit from economies of scale and scope. A public utility would not necessarily interact in an efficient way with privately owned and operated FMIs; moreover, a publicly owned utility could create some ambiguities with regard to the potential involvement of taxpayers in case of distress.

Further, in parallel with the systemic growth of CCPs, their operators and regulators are increasingly confronted with the issue as to whether or not members and their clients (in addition to CCP owners and operators) have sufficient incentives to align the CCP's functioning to the maintenance of financial stability? For instance, to what extent are clearing members incentivised to actively participate in auctions – in case

of the default of a CCP member – and to help achieve a successful outcome? And if such incentives do exist, how are they passed onto their clients? From a broader perspective, do clearing members have sufficient incentives to prudently manage their exposure at a CCP? From this point of view, the actual evidence provides a mixed picture. At the start of the GFC, Lehman Brothers' positions at CCPs were apparently closed out by relying only on the financial resources provided by the defaulting firm and thus with no recourse to loss-sharing arrangements (default fund). More recently, the default of a clearing member at the Nasdaq Clearing CCP seems to show that in that case there were insufficient incentives for the firm itself to prudently manage its own exposure, or for the surviving clearing members to proactively participate in the subsequent auction.

These issues are well known and have been debated at length within the regulatory community and in the private sector; furthermore, specific issues are currently being discussed at international level and, as clarified in the premise, we do not intend to comment on them here. From a broader perspective, moreover, we do not believe that this question is unique to central clearing, although it is more important for this sector than for other FMI, given the nature of CCPs' loss-distribution arrangements.

What we would like to underline on this occasion, looking at the “future” of the central clearing activity, is that in light of the expected further systemic growth of CCPs, renewed attention should be given to their role as the producer of a public good (i.e. financial stability). From this perspective, the challenge for the CCPs' various stakeholders is to find the appropriate balance of this public policy perspective with the web of private incentives which shape CCPs' functioning. Further analysis in this direction could be extremely useful.

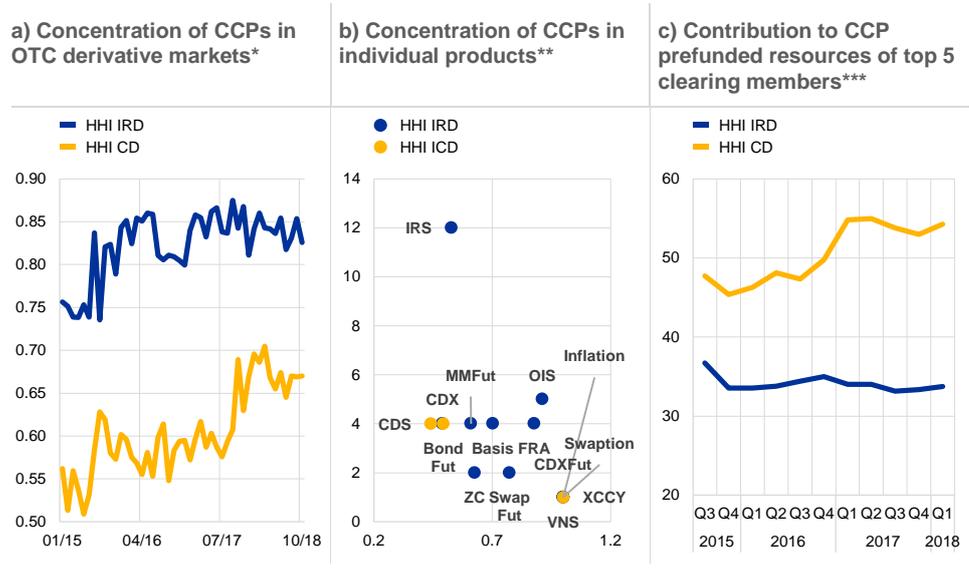
### 3 Excessive concentration of central clearing

As a result of the reforms triggered by the GFC, the structure of the derivatives market has changed dramatically. In particular, in the last decade, the share of centrally cleared transactions has increased significantly, CCPs have expanded, the industry has remained highly concentrated, and the range of banks and other financial institutions that channel their transactions through CCPs has broadened.

Chart 2 shows that central clearing is today a highly concentrated business, in terms of both providers (CCPs) and users (primarily, systemically important banks). According to a 2017 study of 26 CCPs across 15 jurisdictions in North and South America, Europe, and Asia, the largest 20 clearing members - as measured by contributions to CCPs' prefunded financial resources (that is, initial margin plus guarantee fund contributions) – accounted for roughly 75% of all such contributions from a total of 307 clearing members (Basel Committee on Banking Supervision et al., 2017, p. 2). Provision of client clearing for OTC derivatives is particularly highly concentrated, for example, five clearing members (all bank-affiliated) account for more than 80% of total client margin for cleared interest rate swaps in the United States, the United Kingdom, and Japan (Basel Committee on Banking Supervision et al., 2018a, p. 3).

**Chart 2**

Central counterparties (CCPs) and clearing members are concentrated



Sources: Clarus Financial Technology; authors' calculations.  
 CD = credit derivatives; IRD = interest rate derivatives. HHI = Herfindahl-Hirschman Index.  
 \* Concentration is measured by the HHI of clearing volume. The HHI ranges from 0 to 1; a higher HHI indicates a more concentrated market. \*\* Concentration is measured by the HHI of outstanding notional, average across the period January–September 2018. IRD products: (red dots): basis swaps (Basis), bond futures (BondFut), vanilla fixed float interest rate swaps (IRS), forward rate agreements (FRA), inflation swaps (Inflation), money market futures (MMFut), overnight index swap (OIS), futures on interest rate swaps (SwapFut), Swaption, variable notional swaps (VNS), cross-currency swaps (XCCY) and zero coupon swaps (ZC). CD products (blue dots): credit default swap (CDS), credit default swap index (CDX) and futures on credit default swap index (CDXFut). \*\*\* There are four CCPs in IRD: BMEC IRS, CME IRS, JSCC, and LCH SwapClear Ltd; and five CCPs in CD: CME CDS, ICC CDS, ICEU CDS, JSCC CDS and LCH CDSClear SA

There are several factors explaining this trend. On the one hand, concentration amplifies the benefits of multilateral netting, reducing the size of net exposures and the associated risk management costs. This creates strong incentives to use a single CCP for clearing all the business. On the other hand, even if CCP access criteria are fair and open, they remain the first line of defence against risks and can be very demanding to observe especially for smaller clients. This explains why some categories of customers are de facto prevented from or unwilling to apply for CCP membership. Client clearing may be the only way to comply with clearing obligation requirements, in those jurisdictions where they exist.

This high level of concentration, on the one hand has the potential to reduce risks and concentrate them in a few “more reliable” entities. On the other hand, the concentration of financial exposures in a handful of large clearing members can have a number of adverse consequences, some of which may have systemic risk implications. Concentration increases the dependence of the financial stability of the whole system on the stability of a limited number of “too big to fail” participants which are also highly interconnected. A 2018 study on central clearing interdependencies found that the largest 11 clearing members globally (as measured by contributions to CCPs' prefunded financial resources) operate in between 16 and 25 CCPs (Basel Committee on Banking Supervision et al., 2018b, p. 4). So, should one of the largest 11 clearing members default in one CCP, it could result in the concurrent default of the same entity or its affiliates at up to 24 other CCPs. Moreover, some of the largest clearing members or affiliated firms also provide other financial services to CCPs in different capacities – serving as settlement banks, custodians, and providers of lines

of credit<sup>2</sup>. Since many banks provide such services to CCPs in multiple financial centres, the default of one large, interconnected, bank-affiliated clearing member has the potential to affect multiple CCPs. This growing interconnectedness raises the question as to whether CCPs might spread losses in the case of default, or intensify deleveraging pressures in ways that add to systemic stress? Last but not least, high concentration of positions in a few clearing members makes porting or allocating their portfolios to other surviving clearing members more difficult, in case of default.

How can stakeholders manage these trends?

### 3.1 CCP Interoperability

The question of the optimal level of concentration for a specific asset in a CCP is complex and depends on many parameters such as the level of funding available to the CCP(s), the interlinkages between the cleared asset classes, the degree of integration between the different groups of participants and the particular risk profiles of these different groups. Overall, a single CCP solution appears less resilient than a few bilateral links between CCP when the magnitude of the crisis is large, and only more resilient when the magnitude of the crisis is small in relation to the clearing fund of the CCP(s). In this respect, robust interoperability arrangements have been considered as a possible option to limit concentration.

The question of linkages between CCPs clearing OTC derivatives and is, however, a difficult one. While it is true that domestic CCPs linked to several global clearers can provide some jurisdictions with control over clearing without excessive splitting of netting sets, links may create new channels for risk propagation. Given the novelty and risks of interoperability for OTC derivatives clearing, the current best guess must be that it will not play a major part in the new landscape at least until supervisory cooperation is put under strain. As a consequence, a few large CCPs, perhaps no more than two or three per asset class, are likely to come to dominate the market for OTC derivatives central clearing and the level of concentration is likely to remain high. (See also Murphy et al, 2019.)

### 3.2 New access models

As already mentioned, in the past few years, the clearing of derivatives has been mainly handled by a small number of clearing members at major CCPs across the world. The debate on new CCPs access models as a way to reduce risks associated with client clearing and improving/facilitating portability of positions in case of a participant default, started in the aftermath of the discussion on leverage ratio requirements.

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<sup>2</sup> According to data from that 2018 global study, 27% of clearing members provide credit and liquidity facilities to at least one CCP, 26% are investment counterparties to a CCP, and 16% provide intraday liquidity to a CCP (Basel Committee on Banking Supervision et al., 2018b, pp. 4-8).

In order to address concerns associated with the high concentration of business in a few clearing members some CCPs have been encouraging major end-users of derivatives (such as companies, pension funds, insurance companies, and sovereign wealth funds) to become direct clearing members. This would allow to reduce capital charges for clearing members and customers and will facilitate the porting of the new clearing members' positions in case of default.

The challenges of becoming a direct clearing member are, however, significant. First, potential direct clearing members have to address the additional head count and expense required to handle all the post-trade processing that membership entails. The second potential hurdle is the requirement to contribute to the CCP's mutualised guarantee fund. A third obstacle stems from the need to hold substantial amounts of cash in reserve in order to meet a potential variation margin obligation as part of an afternoon or ad hoc settlement cycle. Since many potential direct clearing members have their cash fully invested in the morning, they may not have the necessary same-day funds on hand.

As a result, although many CCPs developed models to enable new participants to have direct access, nowadays there is not so much demand for the service.

To the extent that new access models have the potential to reduce concentration risk and facilitate portability, it could be beneficial to continue to explore ways to facilitate direct access to CCPs.

## 4 Brexit challenges for the European landscape

In a provocative fashion, one could say that in the world of central clearing, in essence, Brexit has yet to come. As of December 2020, the vast majority of interest rate swaps and credit default swaps contracts were being cleared at UK CCPs and, so far, there has not been a massive transfer of the activity of EU intermediaries from UK CCPs to EU CCPs as a consequence or in anticipation of Brexit. From a legal standpoint UK CCPs can provide their services to European counterparties and markets thanks to a temporary recognition, until 30 June 2022, granted by ESMA on the basis of the temporary equivalence granted by the EU Commission.

Of course, it would be inaccurate to say that nothing has changed after the final exit of the United Kingdom from the EU; for example, the EMIR colleges of regulators are no longer in place for UK CCPs. However, from the point of view of CCPs' and their clearing members' activity, no significant change has occurred so far due to Brexit.

The true challenges will come from the 30 June 2022 deadline, and they will concern both the regulatory community and the private sector on both sides of the Channel.

The EU regulatory framework calls EU public authorities to make complex decisions, and in particular to evaluate whether, to what extent and in what circumstances, the systemic importance of (some) UK CCPs for EU financial markets could pose risks for the financial stability of the Union and for the transmission and conduct of its monetary policy.

Likewise, complex decisions are also expected from the private sector, CCPs, clearing members and their clients, in terms of potentially reallocating their business within the EU.

The communication of the European Commission of 19 January 2021 – The European economic and financial system: fostering openness, strength and resilience – is clear on this point: *“EU market participants need to reduce their excessive exposures to systemic CCPs in third countries, and EU CCPs need to build up their clearing capability. Exposures will be more balanced as a result, to the benefit of financial stability. The Commission, together with the ECB, the European Banking Authority (EBA) and European Securities and Markets Authority (ESMA), therefore plans to work with the industry to assess possible technical issues relating to the transfer of contracts denominated in euro or other EU currencies to central counterparties located in the EU with a view to facilitating such transfers. The impact on the real economy will also be considered. Recommendations are expected to be issued by mid-2021”*.

As is evident, the outcome of Brexit will be the result of the interaction between different forces at stake, i.e. regulatory interventions, competition among CCPs and clearing members, the search for netting opportunities.

How the European central clearing landscape will look after the “CCP Brexit” of June 2022, is impossible to predict; however, we can be sure that it will be different, at least for some asset classes. Given that eighteen months is a short time for complex processes such as central clearing, we believe that Brexit can be rightly included among the challenges for European central clearing.

## 5 Conclusion

This chapter aims to show that, despite the simple mechanics and the “maturity” of the business, the central clearing activity is exposed to significant challenges, which involve complex decisions being made by both public authorities and the private sector, in their various capacities of owner, operator or user of CCPs.

We believe that in the short- to medium-term, from a systemic stability perspective central clearing will continue to play a key role within the financial markets arena; as such, it will continue to raise at global (and in some cases at European) level, challenging issues and difficult trade-offs for public authorities and private agents.

The main responsibilities to address such challenges remain with market stakeholders. The increasing number of potential stakeholders and the existence of different (and often conflicting) interests, makes this task significantly difficult and also means that the ability of the CCPs to identify effective incentives in a wide range of areas (auctions, recovery and resolution, client clearing, etc.) is crucial.

While the role of the authorities is clear in addressing public policy objectives (in particular financial stability concerns) and actual work streams have already been identified in this respect – notably the work on margin methodologies and CCP

resilience, recovery and resolution referred to in the introduction – the authorities' possible lines of action on issues concerning market structures and governance are less clear, at least as long as apparent market failures have not materialised.

Authorities may already leverage on their catalyst role. First, it could be helpful to facilitate a structured dialogue between the various private sector stakeholders. “Rather than speaking about each other, private sector participants would do well to speak more to each other.”<sup>3</sup> This could take the form of a private sector-led standing forum for dialogue between the main industry associations of CCPs and banks.

More broadly, it could be helpful to launch a public sector reflection and discussion on governance issues concerning FMIs in general and CCPs in particular. Such a work stream could be included in the FSB-CPMI-IOSCO CCP Action Plan.

We hope that the above considerations may contribute to the debate on the current and forthcoming challenges.

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<sup>3</sup> “Joining forces: stepping up coordination on risks on central clearing”, introductory remarks by Fabio Panetta member of the Executive Board of the ECB at the *Second Joint Bundesbank/ECB/Federal Reserve Bank of Chicago Conference on CCP Risk Management*, Frankfurt am Main, 26 February 2020.

# Abbreviations

For a more comprehensive overview of abbreviations please refer to the [ECB glossary](#).

<b>ACH</b>	Automated Clearing House	<b>ERPB</b>	Euro Retail Payments Board
<b>AM</b>	Assessment methodology	<b>ESCB</b>	European System of Central Banks
<b>BIC</b>	Bank Identifier Code	<b>ESMA</b>	European Securities and Markets Authority
<b>BCOE</b>	Business Continuity Oversight Expectations	<b>FISCO</b>	Fiscal Compliance Expert Group
<b>CCB</b>	Correspondent Central Bank	<b>FMI</b>	Financial market infrastructure
<b>CCBM</b>	Correspondent Central Banking Model	<b>FSB</b>	Financial Stability Board
<b>CCP</b>	Central counterparty	<b>LVPS</b>	Large-Value Payment System
<b>CDS</b>	Credit Default Swap	<b>MOG</b>	Monitoring Group of the Code of Conduct on Clearing and Settlement
<b>CESAME</b>	Clearing and Settlement Advisory Monitoring Expert Group	<b>PFMI</b>	Principles for financial market infrastructures (CPSS-IOSCO)
<b>CESR</b>	Committee of European Securities Regulators	<b>PSD</b>	Directive 2007/64/EC on Payment Services
<b>CLS</b>	Continuous Linked Settlement	<b>PvP</b>	Payment versus Payment
<b>CP</b>	Card payment	<b>RCCP</b>	Recommendations for CCPS
<b>CPMI</b>	Committee on Payments and Market Infrastructures	<b>RTGS</b>	Real-Time Gross Settlement
<b>CPSS</b>	Committee on Payment and Settlement Systems	<b>RTS</b>	Regulatory Technical Standards
<b>CSA</b>	Canadian Securities Administrators	<b>SEPA</b>	Single Euro Payments Area
<b>CSD</b>	Central securities depository	<b>(SI)PS</b>	(Systemically important) payment system
<b>CIISI-EU</b>	Cyber Intelligence Information Sharing Initiative	<b>SSS</b>	Securities settlement system
<b>CT</b>	Credit transfers	<b>SWIFT</b>	Society for Worldwide Interbank Financial Telecommunication
<b>DD</b>	Direct debits	<b>TARGET</b>	Trans-European Automated Gross-settlement Express Transfer
<b>DNS</b>	Deferred Net Settlement	<b>TS</b>	TARGET2
<b>DvP</b>	Delivery versus Payment	<b>T2S</b>	TARGET2 Securities
<b>ECMS</b>	Eurosystem Collateral Management System	<b>TIBER-EU</b>	Threat Intelligence Based Ethical Red teaming
<b>FISCO</b>	Fiscal Compliance Expert Group	<b>TR</b>	Trade repository
<b>EMIR</b>	European Market Infrastructure Regulation	<b>TIPS</b>	TARGET Instant Payment Settlement
<b>EPC</b>	European Payments Council		

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