1. The Bank's role in oversight and prudential supervision of financial market infrastructures, custodians, payment service providers and critical service providers

To provide more insight into the systems and institutions providing payment, clearing, settlement, custody and other services, either from a wholesale or a retail market perspective, section 1.1 provides an overview of the structure and interdependencies between them. Relevant processes and flows are more explained in detail in the next parts of this Report (i.e. chapters 2, 3 and 4). Section 1.2 explains the Bank's mandate and role in the oversight and prudential supervision of this sector, either in a national or international perspective.

1.1 Critical nodes in the functioning of financial markets and payment services

The systems and institutions covered in this Report can be ranked in three categories according to the type of service provided : (i) securities clearing, settlement and custody, (ii) payments and (iii) other service providers to the financial infrastructure. Through their activities or services provided to the financial industry, these systems and institutions are the critical nodes in the functioning of financial markets and payment services as well as the real economy. If designed safely and managed properly, they are instrumental in reducing systemic risks and contagion in the event of financial crises. At the same time, they are interlinked with other financial market infrastructures (FMIs), financial intermediaries and other actors such as merchants or retail customers. These interdependencies are briefly presented and illustrated in chart 1. Box 1 shows how these systems and institutions providing payment, clearing, settlement, custody and other services have performed between 2008 and 2019 in terms of transaction volumes and values.

Securities clearing, settlement and custody

A trade in a financial instrument is concluded between a buyer and a seller by agreeing the price and the contract terms. Trading in such instrument can be on-exchange (i.e. on a centralised platform designed to optimise the price-discovery process and to concentrate market liquidity) or bilaterally on an over-the-counter (OTC) basis (i.e. where the counterparties make the bid and accept the offer to conclude contracts directly among themselves). The final investor uses a custodian bank, which could rely on other intermediaries (e.g. brokers) to conduct trades. Trade exchanges such as Euronext Brussels are supervised by securities regulators and are not covered in this Report.

FMIs and financial institutions that provide securities clearing, settlement and custody services are considered part of the post-trade securities landscape. The clearing of a trade via a central counterparty (CCP) generally means that the CCP becomes the buyer counterparty for the seller and the seller counterparty for the buyer. Both original counterparties to the trade then have a claim on the CCP. The direct participant of a CCP – usually a bank or an investment firm – is called a clearing member. A clearing member may clear not only its own trades via the CCP, but also those of its clients. Whereas there are no CCPs established in Belgium, CCPs in other countries can be systemically important due to their clearing activities for the Belgian securities market.

After clearing, the settlement of a trade results in the transfer of cash and/or of a financial instrument between the parties in the books of a central securities depository (CSD). CSDs generally act as the register of securities issued in their domestic market. In the case of international securities, such as Eurobonds, issuers can choose the currency or country of issue. These securities are held in international CSDs (ICSDs)[1]. When a CCP has intervened to clear a trade, settlement takes place on the books of (I)CSDs[2] between the buyer and the CCP, and between the seller and the CCP. There are three (I)CSDs established in Belgium: Euroclear Bank (ICSD), Euroclear Belgium and NBB-SSS (both CSDs). The cash leg of securities settlement takes place either in payment systems operated by central banks (i.e. central bank money, for example TARGET2) or on the books of an (I)CSD with banking status providing (multicurrency) cash accounts (i.e. commercial bank money, for example Euroclear Bank).

Financial institutions that facilitate their clients' access to securities investment markets are referred to as custodians. In that capacity of intermediary, custodians can offer their clients safekeeping and settlement services. A local custodian primarily focuses on serving a single securities market. If a custodian has access to markets worldwide, it is considered a global custodian.

Payments

The payments landscape covers both wholesale (i.e. transactions between banks for institutional investors) and retail payments segments (i.e. transactions between retail customers), and includes payment systems, payment service providers (PSPs) such as payment institutions (PIs) and electronic money institutions (ELMIs), processors for retail payment instruments and card payment schemes.

Payment systems encompass large-value payment systems (LVPS) and retail payment systems (RPS). While LVPSs generally exchange payments of a very large amount, mainly between banks and other participants in the financial markets, RPSs typically handle a large volume of payments of relatively low value by means of credit transfers and direct debits. In Belgium, most interbank payments are processed by TARGET2, the LVPS connecting Belgian with other European banks, and by the Centre for Exchange and Clearing (CEC), which is the domestic retail payment system processing intra-Belgian domestic payments.

The role of PIs and ELMIs in the retail payments area is multiple and growing. PIs and ELMIs have since long been active in the card payment business, issuing payment cards to the user and/or acquire the funds for the payment on behalf of the merchant. The second Payment Services Directive (PSD2) will further strengthen the role of non-banks in the market since they are now allowed (under certain conditions) to make use of the banking industry's accounting ledger for accessing and consulting payment service users' accounts online.

Card payments remain the most widely used payment instrument in Belgium and typically involve a "four-party scheme", i.e. cardholder, card issuer, merchant and acquirer. The card of the person on the purchase side of a transaction (cardholder) with a merchant is issued by an institution (card issuer) which was traditionally always a bank, but can, nowadays, also be a PI or ELMI. The acquirer is in charge of acquiring the transaction

1 There are two ICSDs in the EU which act as "issuer CSD" for Eurobonds; i.e. Euroclear Bank established in Belgium and Clearstream Banking Luxembourg.
2 The term (I)CSD is used to cover both CSDs and ICSDs.

on behalf of the merchant (i.e. performing for the merchant all the steps necessary for the buyer's money to be paid into the merchant's account). The relevant rules and features according to which card payments – either debit or credit – can take place are defined by card payment schemes. The Belgian domestic (debit) card payment scheme is Bancontact. Mastercard Europe (MCE) is the European subsidiary of the Mastercard group, which owns the international (credit) card payment scheme, and is established in Belgium. For Bancontact, a scheme switch is in place, but one processor provides the underlying network and services for the majority of card payments, namely equensWorldline SE. For Maestro, the processing network is provided directly by Mastercard. After the processing of card payments, transactions are sent to the CEC for clearing and settlement. PIs have also a major role in providing money transfer/remittance services (fund transfers) allowing retail customers to transfer funds from Belgium to a third party in different locations around the world and vice versa.

CLS, a settlement system for foreign exchange (FX) transactions is linked to the LVPS systems operated by central banks of 18 currencies (including TARGET2 for EUR), making it possible to settle both legs of the FX transaction at the same time. CLS eliminates FX settlement risk when – due to time zone differences – one party transfers the currency it sold but does not receive the currency it bought from its counterparty.

Other infrastructures and service providers

TARGET2‑Securities (T2S) is the common settlement platform for European CSDs. Although SWIFT, which provides messaging services, is neither a payment system nor a settlement system, a large number of systemically important systems depend on it for their daily financial messaging. It is therefore considered as a critical service provider.

BOX 1

Growing importance of payment and settlement systems, FMIs and other service providers in the payment area

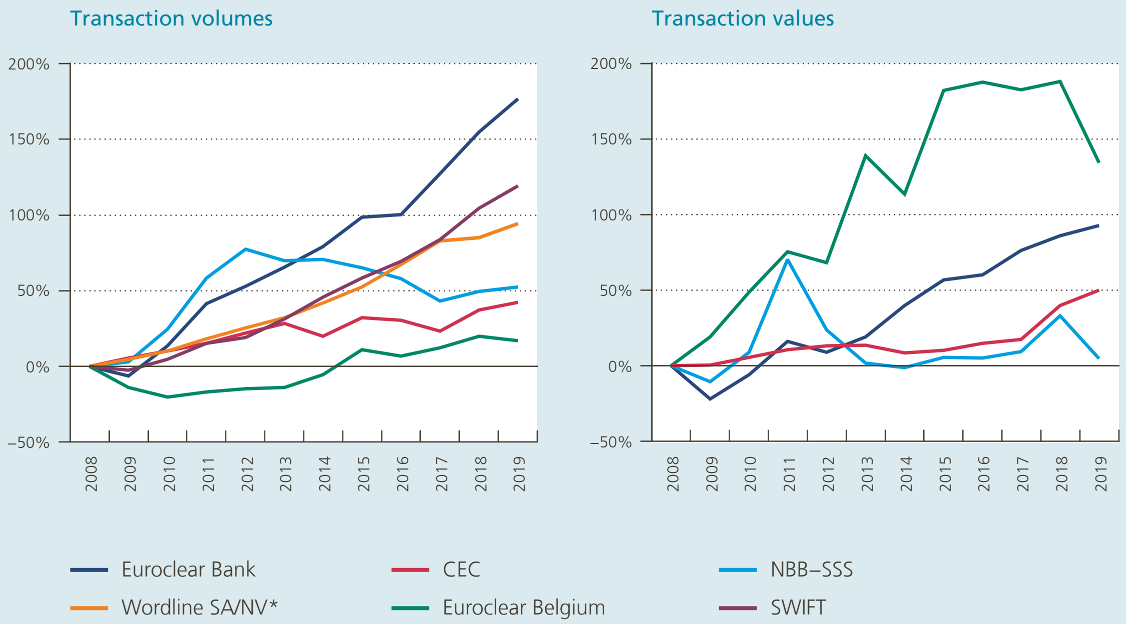
For most of the institutions mentioned in the following graph, the growth in number and value of transactions continued in 2019.

The underlying factors that could explain the evolution in FMIs' and service providers' business activities can be diverse (e.g. market volatility in wholesale markets, digitalisation of retail payments). Some of them have expanded their activity considerably since reference year 2008. In terms of transaction volumes, this is notably the case for Euroclear Bank (+177 %) and SWIFT (+119 %). In value terms, highest growth rates are recorded for Euroclear Belgium (+134 %)[1] and Euroclear Bank (+93 %). Others have also grown but less significantly (e.g. retail payment system CEC) or were subject to more volatility (e.g. NBB‑SSS, due to the impact of the sovereign debt crisis in 2011).

1 Euroclear Belgium settles mainly equities that are expressed in terms of market value.

Trends in transactions processed by selected FMIs and service providers

(in %, reference year 2008 as index 0)



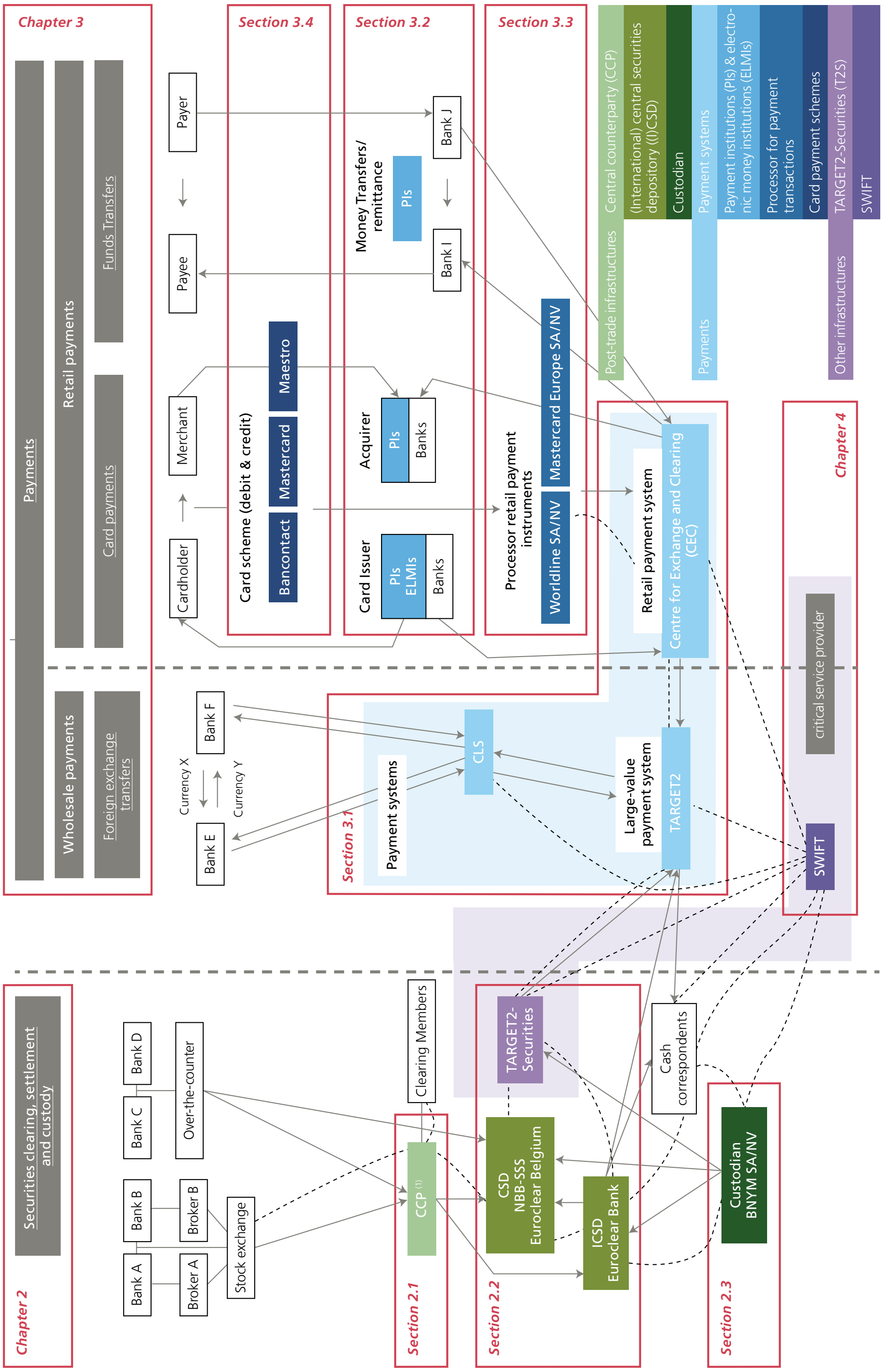
* Since 2017, as a consequence of the transfer of some processing activities to equensWorldline SE, volumes reported in this chart only refer to acquiring activities of Worldline SA/NV

Source : NBB calculations.

In general, the systemic importance of these FMIs and service providers continues to grow. An unexpected disruption of their services could have a significant impact across different types of stakeholders (including the public in general). Operational resilience of FMIs and other service providers in the payment area is therefore a top priority for regulators, both with respect to day-to-day operational risk management (e.g. capacity management, system change plans) and contingency situations (e.g. business continuity plans, disaster recovery plans), including in the event of cyber attacks.

Chart 1

Interlinkages through and between financial market infrastructures, custodians, payment service providers and critical service providers



1.2 FMIs, custodians, payment service providers and critical service providers subject to oversight and prudential supervision by the Bank

The Bank has responsibilities in both oversight and prudential supervision of FMIs, custodians, PSPs, such as PIs and ELMIs and critical service providers.

Oversight and prudential supervision of FMIs differ in a number of areas, ranging from the object of the function, the authority being responsible, the topics covered, as well as the regulatory framework and tools used. However, both oversight and prudential supervision activities, and the framework they are relying on, evolve over time.

Central banks have always had a close interest in the safety and efficiency of payment, clearing and settlement systems. One of the principal functions of central banks is to be the guardian of public confidence in money, and this confidence depends crucially on the ability of economic agents to transmit money and financial instruments smoothly and securely through payment, clearing and settlement systems. These systems must therefore be strong and reliable, available even when the markets around them are in crisis and never themselves be the source of such crisis. The central bank's oversight of FMIs pursues these objectives by monitoring systems, assessing them and, where necessary, inducing change. It is generally recognised as a core responsibility of central banks.

The Bank's oversight of payment, clearing and settlement infrastructures is based on Article 8 of its Organic Law [1] and focuses on systems established in, or relevant for Belgium. Although SWIFT is neither a payment, clearing nor settlement infrastructure, many of such systems use SWIFT which makes the latter a critical service provider of systemic importance. SWIFT is therefore subject to a (cooperative) central bank oversight arrangement, in which the Bank has the role of lead overseer.

The Bank is also prudential supervisory authority for individual financial institutions, as well as custodians and PSPs like PIs and ELMIs. While significant credit institutions, such as The Bank of New York Mellon SA/NV (BNYM SA/NV), are directly supervised by the single supervisory mechanism (SSM), less significant institutions remain under the prudential supervision of the Bank as national competent authority.

Some FMIs are subject to both oversight and prudential bank supervision, typically if the FMI operator has a bank status (as is the case for Euroclear Bank). Worldline SA/NV is also subject to both prudential supervision (as PI) and oversight (as processor of retail payment instruments). The oversight activity and prudential supervision are, in such situations, complementary in nature: while the oversight activity focuses on the sound functioning of the settlement system (by assessing compliance with oversight standards such as the CPMI-IOSCO Principles for FMIs (PFMIs)), the prudential supervision focuses on the financial soundness of the operator (by assessing compliance with prudential regulations). As a result, oversight and prudential supervision typically cover different topics or different perspectives. One of the main priorities of oversight relates to the prohibition and containment of any transmission between participants of financial or operational risks through an FMI or service provider. Typical areas oversight focuses on cover the functioning of the system and how its organisation and operation minimises or avoids risks not only for itself but – just as importantly – for its participants. Examples include settlement finality rules reducing risks associated with insolvency of participants (which prevent automatic unwinding of other participants' previous transactions with a bankrupt participant), delivery versus payment (DVP) or payment versus payment (PVP) mechanisms eliminating principal risks in transactions between participants, fair and open access for participants, and stringent requirements on business continuity plans ensuring continuity of services for participants. Oversight also takes into account risks related to system interdependencies (either via connected systems or participants) that could provoke contagion risks in financial markets. Prudential supervision intends

1 Article 8, Law of 22 February 1998 establishing the Organic Statute of the National Bank of Belgium, Belgian Official Gazette 28 March 1998, 9.377.

to ensure that institutions are financially robust at micro-prudential level, thus helping to maintain the trust of the institution's counterparties and, in this way, promoting financial stability. Some types of risks are within focus of both FMI overseers and bank supervisors. However, their perspective is different as an FMI's business model is based on transferring liquidity (which has an element of time criticality) between – or on behalf of – its participants, whereas a bank's business model is rather based on maturity transformation (short-term deposits, long-term assets). Therefore, the regulatory approach for credit, liquidity and operational risk for FMIs and banks is different. Table 1 compares the different approaches between the oversight of FMIs and the prudential supervision of banks, further illustrated by chart 2.

As a consequence of such divergences in scope, oversight and prudential supervision rely on different frameworks. For oversight, the PFMIs cover payment systems, securities settlement systems, CSDs, CCPs and trade repositories, as well as critical service providers (Annex F of the PFMI report). For the implementation of these principles, further clarity is provided by relevant guidelines such as the CPMI-IOSCO guidance on cyber resilience for FMIs or the guidance on resilience and recovery of CCPs. In addition, the CPMI has also published an analytical framework for distributed ledger technology in payment, clearing and settlement.

The tools to conduct oversight and prudential supervision may differ too. Oversight is generally based on principles and guidelines designed in international fora (Eurosystem, CPMI, CPMI-IOSCO). The traditional approach for enforcing them was to urge FMIs and other (critical) service providers to adhering to them via central bank moral suasion (so-called "soft law" approach). Prudential supervision, on the other hand, has laid down its requirements in a formal legal framework enacted through EU Directives, Regulations and local laws ("hard law" approach). However, central bank oversight has become more formal, owing to the expanding role

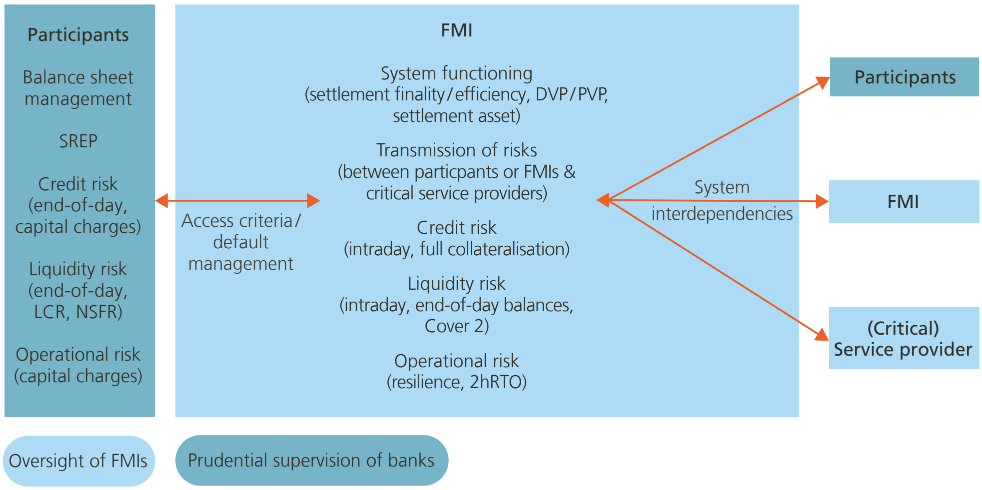
Table 1

Oversight of FMIs and prudential supervision of banks: a different approach

	Oversight of FMIs	Prudential supervision of banks
Authority	Central bank	Supervisory agency or central bank
Scope & objective	Safety and efficiency of payment, clearing and settlement systems (systemic stability)	Financial soundness of banks
Frameworks	CPMI-IOSCO Principles for FMIs (PFMIs) and additional guidance, Eurosystem Oversight Framework	Banking regulations (CRD IV, CRR, Belgian Banking Law)
Tools and instruments	Moral suasion ("soft law" approach) but in some cases regulation (i.e. PFMIs transposed into hard law by SIPSR, EMIR and CSDR)	Directives/Regulation ("hard law" approach)
Selected examples of attention points	▪ System functioning (settlement finality/efficiency, DVP/PVP, settlement asset, access criteria / default management) ▪ Transmission of risks (between participants or FMIs and critical service providers) ▪ Credit risk: full collateralisation of intraday credit risk ▪ Liquidity risk: intraday dimension and end-of-day balances – cover failure of two largest liquidity exposures ▪ Operational risk: resilience, 2h recovery time objective (2hRTO)	▪ Balance sheet management ▪ Supervisory Review and Evaluation Process (SREP) ▪ Credit risk: end-of-day risk – capital charges on Risk Weighted Assets (RWA) ▪ Liquidity risk: end-of-day risk – liquidity coverage ratio (LCR), net stable funding ratio (NSFR) ▪ Operational risk: capital charges

Chart 2

Oversight of FMIs and prudential supervision of banks: illustration of a different approach



of the private sector in providing payment and settlement systems, as well as the growing criticality of these systems' proper functioning. In a growing number of cases, oversight is evolving into a hard law approach as illustrated, for example, by the fact that the ECB has laid down its expectations in the ECB Regulation on oversight requirements for systemically important payment systems (SIPSR), or by the 2017 Belgian Law on systemically relevant processors for retail payment instruments. Also, the EU transposed the oversight framework for CCPs and CSDs (i.e. PFMIs) through Regulations (EMIR, CSDR). The Bank has been assigned as the competent supervisory authority for Belgian (I)CSDs, and is, as overseer, also considered as relevant authority under CSDR [1].

Some FMIs or PSPs, such as Euroclear Bank or Worldline, are subject to both oversight and prudential supervision. In order to pool expertise, reinforce the synergies and align approaches between the oversight function and that of prudential supervision on FMIs, custodians, PSPs and other (critical) service providers, these two functions have been integrated into the same Department within the Bank for these categories of institutions.

Table 2 below provides an overview of the systems and institutions supervised and / or overseen by the Bank for these categories of institutions. In addition to the type of services provided, they have been further grouped according to: (i) the type of regulatory role of the Bank (i.e. prudential supervisor, overseer or both) and (ii) the system / institution's international dimension (the Bank as solo authority, international cooperative arrangement with the Bank as lead or in another role). For the systems and institutions established in Belgium which are systemically relevant in other jurisdictions' financial markets or for the financial industry as a whole, the Bank has established cooperative arrangements with other authorities [2]. These may involve multilateral cooperative arrangements, in which the Bank acts as lead overseer (Euroclear, SWIFT). The Bank also takes part in a number of international cooperative arrangements (CCPs, BNYM, TARGET2, TARGET2-Securities and CLS) in which another national authority acts as lead overseer / supervisor. Domestically, the Bank cooperates with the FSMA which has responsibilities in the supervision of financial markets with regard to conduct of business rules. Annex 2 illustrates the organisation structure of FMIs with an international dimension established in Belgium.

1 The FSMA is assigned, together with the Bank, as national competent authority for CCPs under EMIR.

2 In line with CPMI-IOSCO Responsibility E (cooperation between authorities). The Bank intends – through this Report – to inform other authorities with whom it does not have any formal cooperation but which may be interested in understanding the applicable framework, the regulatory approach and the main supervisory priorities.

Table 2

The Bank's oversight and prudential supervision of financial market infrastructures, custodians, payment service providers and other market infrastructures and critical service providers

(January 2020)

	International supervisory college / cooperative oversight arrangement		NBB solo authority
	NBB lead authority	NBB takes part, other authority is lead	
Prudential supervision		Custodian Bank of New York Mellon SA/NV	Payment Service Providers (PSPs) Payment Institutions (PIs) Electronic Money Institutions (ELMIs)
Prudential supervision and oversight	CSD Euroclear Belgium (ESES) ICSD Euroclear Bank SA/NV Institution providing support to a CSD Euroclear SA/NV (ESA)	CCP LCH Ltd (UK), ICE Clear Europe (UK) LCH SA (FR), Eurex Clearing AG (DE), EuroCCP (NL), Keler CCP (HU), CC&G (IT)	Processor for retail instruments Worldline SA/NV
Oversight	Critical service provider SWIFT	Market infrastructure TARGET2-Securities (T2S) 1	CSD NBB-SSS
		Payment system TARGET2 (T2) 1 CLS	Card payment schemes Bancontact 1 Mastercard Europe 1 Maestro 1
			Processor for retail instruments Mastercard Europe
			Payment system Centre for Exchange and Clearing (CEC) 1

Post-trade infrastructures	Securities clearing	Payments	Payment systems
	Securities settlement		Payment institutions and electronic money institutions
	Custody		Processors for retail payment instruments
			Card payment schemes
Other infrastructures	T2S		
	SWIFT		

Source: NBB.
1 Peer review in Eurosystem/ESCB.