

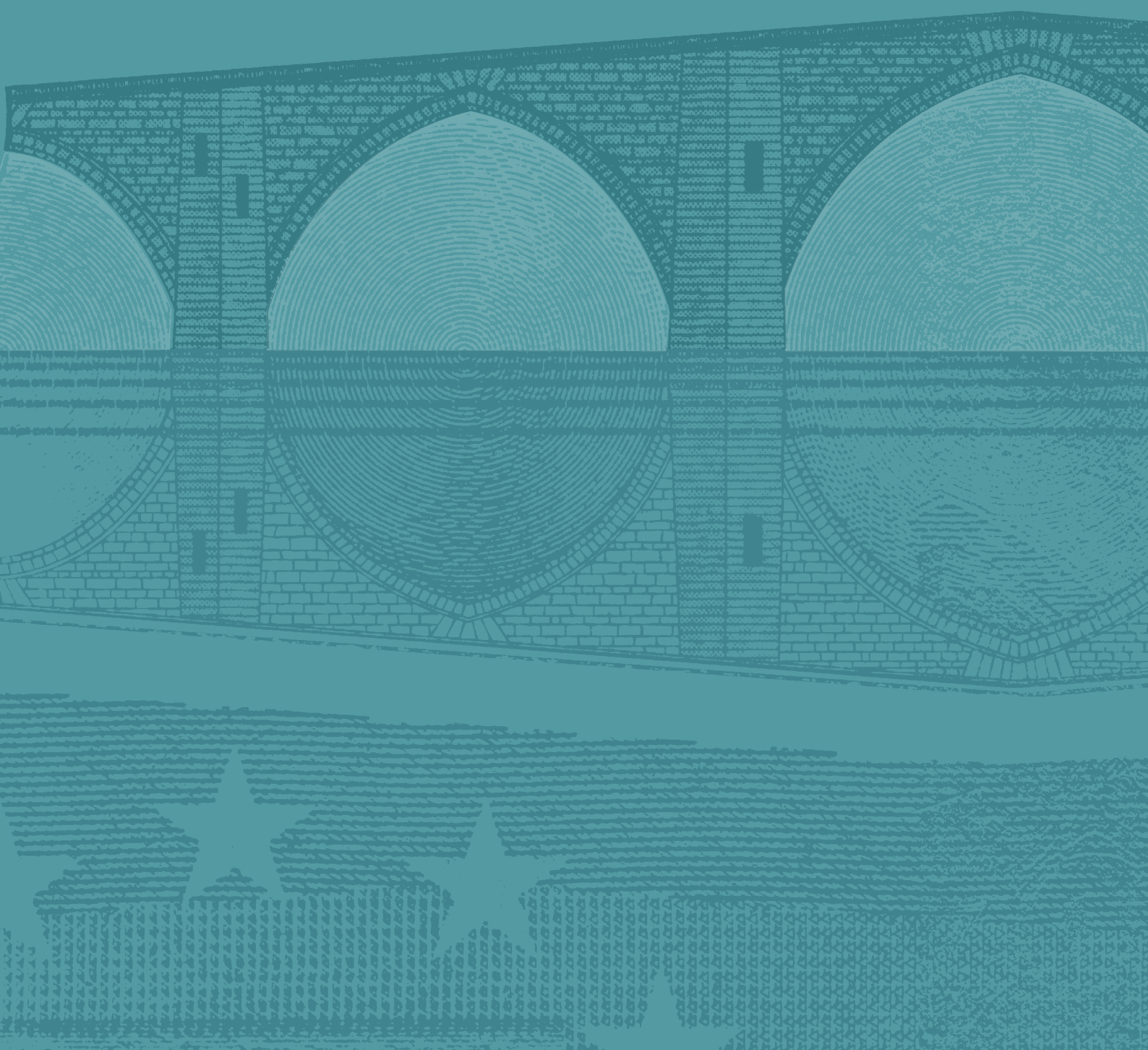


EUROPEAN CENTRAL BANK

EUROSYSTEM

EURO REPO MARKET: IMPROVEMENTS FOR COLLATERAL AND LIQUIDITY MANAGEMENT

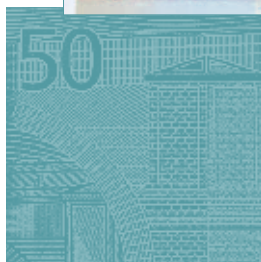
JULY 2014





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The objective of the report is to define improvements to the repo market to better support collateral/liquidity management arrangements

EXECUTIVE SUMMARY

Market developments in recent years have had a major impact on financing arrangements in the money markets. Most importantly, with the increase in collateralised financing, in particular as a consequence of the financial crisis, financial institutions have to manage their collateral assets more proactively. Regulatory developments such as the mandatory clearing of OTC derivatives, the new prudential requirements for financial market infrastructures (FMIs) and those for initial margins on non-centrally cleared derivatives are also adding to the overall need for the efficient management and optimisation of collateral assets.

In view of the foregoing, market participants in the ECB's Contact Group on Euro Securities Infrastructures (COGESI)¹, and in particular those active in the repo market, have expressed the need for enhancements to existing settlement arrangements to better support collateral and liquidity management activities. Although a number of changes will be implemented with the go-live of T2S, additional improvements beyond T2S would allow the repo market to better support the mobilisation of collateral throughout the day. These improvements complement earlier initiatives stemming from the work of the Giovannini Group related to the integration of European clearing and settlement markets².

The current report sets out the objectives and specific measures for achieving a consistent and integrated market for securities clearing and settlement in the euro area. The objectives are twofold: first, to facilitate a more efficient mobilisation of collateral, in particular on a cross-border/cross-system basis in the euro area; and second, to facilitate the use of collateralised transactions at end-of-day for treasury adjustment operations. To meet these objectives, a set of actions are proposed together with a more detailed set of recommendations and principles to facilitate implementation. Progress on the deliverables will be regularly monitored by the ECB, via the COGESI forum, to ensure that the proposed actions are implemented in a timely manner and consistent with the related recommendations set out in this report.

Issues to be addressed

Market participants and FMIs in COGESI identified a number of infrastructural issues related to collateral mobilisation. In particular, the following operational issues which currently hamper the efficient use of the euro area repo market for collateral and liquidity management purposes were identified:

1. *Issues related to DVP settlement in central bank money (CeBM) in markets not (yet) covered by T2S;*
2. *Issues related to DVP settlement in commercial bank money (CoBM). This encompasses issues concerning settlement arrangements in CoBM involving intermediaries (that hold and administer securities on behalf of customers) as well as ICSDs (that provide custodial services to direct members and operate securities settlement systems);*

¹ The current report has been drafted by the ECB in cooperation with an ad hoc group of COGESI on collateral, composed of members of COGESI and the ECB's Money Market Contact Group (MMCG).

² http://europa.eu/legislation_summaries/internal_market/single_market_services/financial_services_transactions_in_securities/l32002_en.htm

3. *Issues related to the lack of effective (settlement) interoperability between triparty collateral management arrangements;*
4. *Issues concerning operating hours for treasury-related adjustment operations at end-of-day in CeBM on a cross-border/cross-system and DVP basis.*

The following list of actions are proposed to address the issues mentioned above:

*Proposals
for action*

1. *Extending operating hours of CSDs for CeBM settlement.* Operating hours of CSDs CeBM links for same-day DVP settlement should be extended until 4 p.m. CET.
2. *Enhancement of settlement practices in CoBM.* Industry actors involved in the multi-layered CoBM settlement process should enhance their settlement practices, as defined by the recommendations/principles in this report (i.e. recommendations on CoBM settlement processes and principles for interoperable links between (I)CSDs in CoBM).
3. *Achieving settlement interoperability for triparty repo products,* for mobilising securities via (interlinked) triparty collateral management systems (TCMSs), CCPs and (I)CSDs.
4. *Further extended DVP window for settlement of end-of-day collateralised treasury adjustment operations in CeBM until 5.40 p.m. CET for all CSDs.*

The implementation of the above proposals should be aligned with the implementation of T2S where possible, to enhance consistency of settlement arrangements. In particular, improvements to intermediaries' service levels are in part dependent on improvements to CSD service levels, which in turn are partly dependent on T2S. In line with the agreement reached in COGESI, implementation of the proposals is generally targeted for mid-2015 where possible (and at the very latest by the end of the T2S migration), with the exception of triparty settlement interoperability, which is targeted for end-2015, and at the very latest by the go-live of the third T2S migration wave (September 2016).

*Implementation
of the proposals*

Implementation of the above proposals should not interfere with the launch of T2S.

COGESI members expressed their support for implementing the proposals identified in this report. To achieve the suggested timeframes, the broad and voluntary involvement of financial market participants will be sought. Improvements that are needed to support collateral mobility are complex, both technically and organisationally, and implementation could be challenging in view of ongoing regulatory reforms. The Eurosystem stands ready to facilitate continuous cooperation and interaction within the industry in implementing the principles in this report. A consistent implementation of the proposals will ultimately lead to a more integrated euro repo market.

The report is structured as follows. Chapter 1 underlines the importance of the efficient functioning of the repo market to support funding and collateralisation procedures. Chapter 2 then explains the current shortcomings related to repo clearing and settlement processes, which lead to fragmentation of collateral/liquidity in separate pools and hamper the use of repo transactions at the end of the day. Chapter 3 provides concrete solutions/actions at market infrastructure level. The final chapter contains the conclusion and provides a timeframe for implementing the agreed proposals.

I NEED FOR A MORE EFFICIENT FUNCTIONING OF THE REPO MARKET

The repo market plays an important role in the financial system of the euro area and supports market participants in their secured funding and collateralisation procedures. After the slowdown following the onset of the financial crisis, the value of (interbank) repos measured in the European repo market increased and reached around € 5,499 billion by end-2013 (compared to € 4,633 billion in 2008 after the onset of the financial crisis)³.

Recent market developments have underlined the need for more efficient settlement procedures for collateral mobilisation and the establishment of resilient market facilities that allow for funding activities to be smoothly carried out even in times of financial stress. In this respect, the short-term collateralised market could play an important role. The repo market is the segment of the financial market that is the most relevant for supporting the availability of collateral and cash to address short-term liquidity needs.

On the Eurosystem side, a number of important initiatives that will improve the functioning of the repo market have been undertaken. In brief, the Eurosystem is enhancing its collateral management services through:

- *The removal of the repatriation requirement from the Correspondent Central Banking Model (CCBM⁴).* Previously, the repatriation requirement dictated that Eurosystem counterparties transferred assets to the respective issuer CSD before they could be used as collateral for Eurosystem credit operations via the CCBM. The repatriation requirement was abolished in May 2014.
- *Cross-border use of triparty collateral management services for Eurosystem credit operations:* Triparty collateral management services are supported today on a domestic basis only by some Eurosystem central banks in the context of Eurosystem credit operations. The Eurosystem is currently working on the introduction of a framework that also supports the use of such triparty services on a cross-border basis via the CCBM. This enhancement to Eurosystem collateral management services is planned to go-live in September 2014.

The introduction of the above enhancements by the Eurosystem will allow counterparties to manage and mobilise their collateral assets in a more optimal manner in the context of Eurosystem credit operations.

In addition, with the go-live of T2S, the Eurosystem will provide a central pan-European settlement platform, which will optimise settlement of repo transactions by offering real-time settlement in central bank money on a delivery versus payment (DvP) basis. T2S will greatly contribute to the efficient functioning of the repo market in this respect, in particular as regards allowing extended cut-off times for a number of markets and equally supporting both domestic and cross-border collateral transfers⁵.

³ See ICMA's semi-annual survey of the repo market in Europe, December 2013.

⁴ The CCBM enables Eurosystem counterparties to use eligible marketable assets issued (i.e. registered or deposited) in other euro area countries as collateral, i.e. either in monetary policy operations or to obtain intraday liquidity in TARGET2. To do so, they must first transfer the eligible assets to an account maintained by the local national central bank in the "issuing" SSS, i.e. the SSS in which the securities have been issued and deposited. The local central bank is in general the central bank of the country where the SSS is located. The local central bank will then hold the collateral on behalf of the central bank granting the credit.

⁵ See www.ecb.europa.eu/paym/t2s

These Eurosystem initiatives are well on track and are not analysed further in this report. Instead, this report focuses on a number of possible actions that would support a more efficient functioning of the repo market and can be undertaken by the private sector. In this respect, the ECB's Contact Group on Euro Securities Infrastructures (COGESI)⁶ analysed market infrastructure-related developments and existing inefficiencies that need to be addressed. In this context, two main objectives were identified, namely:

Objective 1: facilitating a more efficient mobilisation of collateral, in particular on a cross-border/cross-system basis;

Objective 2: facilitating the use of collateralised transactions at end-of-day for treasury adjustment operations.

Objective 1, the need for improvements in cross-border collateral mobilisation, is not new. In recent years however, it has been **reinforced** for a number of reasons.

The first factor is the factual *shift to collateralised transactions (on a cross-border/cross-system basis)*. Even before the financial crisis, some more profound changes occurred in the funding markets, leading to greater use of secured lending/repo. With the onset of the financial crisis, the elevated levels of risk aversion that emerged induced investors to adopt more restrictive funding/lending policies, leading to a substantial shift from unsecured to secured funding transactions⁷. These developments give rise to the need for more efficient processes for mobilisation of collateral throughout the settlement day, in particular for transfers of collateral across borders and/or systems during the operational day.

Second, as highlighted in a recent report published by the ECB⁸, *collateral requirements differ across specific frameworks*, for example, (i) the collateral policy frameworks of central banks, (ii) EU and global regulatory frameworks and (iii) the practices of CCPs. Because of these differences in collateral requirements and against the background of increasing demand for collateral assets stemming in particular from new regulatory frameworks, there is a need to address the efficiency of procedures around mobilising collateral (by establishing efficient procedures for ensuring that collateral can be made available when and where it is needed).

Third, *collateral pools remain fragmented*. Other important developments in the euro repo market which started to emerge even before the financial crisis are the increased offerings of integrated and automated systems covering management of repo collateral by third-party agents (i.e. "triparty collateral management services") and the trading of standardised baskets of collateral, which are cleared by a CCP. These type of services support market participants in their repo transactions from initiation to maturity. In Europe, however, many of these solutions are not interoperable and imply a separation of liquidity and collateral in different system-specific arrangements. Current arrangements to link the different solutions are not considered efficient, as collateral used via one

6 COGESI created an ad-hoc sub-group on collateral harmonisation composed of members of COGESI and the ECB Money Market Contact Group (MMCG), which includes market participants, financial market infrastructures (FMIs), intermediaries/custodian banks and the central bank community. In this report, the ad hoc sub-group is henceforth referred to simply as "the Group".

7 See the ECB's "Money Market Study 2012": "The contraction in the unsecured market can be explained by the general trend towards secured lending and by a shortening of maturities on the back of greater aversion to counterparty risk. At the same time the current high level of excess liquidity, provided by the Eurosystem, reduces the demand for interbank funding, while stricter regulation requirements tend to reduce the supply of, particularly, unsecured interbank lending."

8 See ECB report entitled "Collateral eligibility requirements – a comparative study across specific frameworks", July 2013.

triparty arrangement (and deposited in one (I)CSD) would first have to be transferred to the relevant (I)CSD used in the other arrangement.

Objective 2, supporting end-of-day treasury adjustments via the repo market, would increase the tools available to the banks' treasurers for their end-of-day liquidity management. Treasury-related adjustment transactions refer to operations which are executed between financial institutions (interbank) towards the end of the day and on a same-day settlement basis (henceforth end-of-day treasury adjustments) to adjust (or in technical language "square") their cash positions following completion of regular settlement operations. There are two main arguments supporting the possibility of using collateralised operations.

First, the crisis has revealed that *in stress situations liquidity hoarding behaviour and increased costs for funding* can seriously hamper the smooth functioning of the uncollateralised money market. The possibility of using collateralised (repo) transactions may provide an alternative to facilitate end-of-day settlement without having recourse to central bank standing facilities.

Second, *risk management and/or recovery procedures of financial market infrastructures* (FMIs) may rely more and more on pre-arranged facilities (including pre-arranged repo facilities) to be activated at the end of the day. These ex-ante rules, procedures, and other contractual arrangements should maintain the FMI's viability as a going concern (e.g. by addressing any uncovered credit loss, liquidity shortfall, capital inadequacy, or business, operational or other structural weakness, including the replenishment of any depleted pre-funded financial resources and liquidity arrangements, as necessary⁹).

Although the main responsibility for undertaking concrete actions to achieve these objectives remains with the industry, the Eurosystem is acting as a catalyst in order to help identify and facilitate implementation of best practices.

2 AREAS FOR IMPROVING THE EFFICIENT FUNCTIONING OF THE REPO MARKET

Based on a fact-finding conducted with COGESI and MMCG members, this report identifies four main areas where work could be conducted to improve the functioning of the repo market:

- (1) operating hours of CSD links for DVP settlement in central bank money (CeBM)¹⁰;
- (2) DVP settlement in commercial bank money (CoBM);
- (3) settlement interoperability between triparty collateral management arrangements;
- (4) dedicated facilities for settlement of end-of-day treasury adjustments in CeBM on a cross-border/cross-system basis.

⁹ See "CPSS-IOSCO - Recovery of financial market infrastructures - Consultative report - August 2013".

¹⁰ Links between CSDs are a set of legal and operational arrangements aimed at facilitating the transfer of securities and fulfilment of obligations between entities participating in different CSDs. A link typically takes the form of an omnibus account opened by a CSD (the "investor CSD") in another CSD (the "issuer CSD"), but different arrangements exist. More information on (I)CSD links is available at <http://www.ecb.europa.eu/paym/coll/coll/ssslinks/html/index.en.html>

2.1 OPERATING HOURS OF CSD LINKS

Today, CSD links operate in a non-standardised manner and with varying cut-off times, the latter often being relatively early in the settlement day. With the introduction of T2S, which offers harmonised and extended operating times and deadlines, these deficiencies will be addressed. However, T2S will only be implemented gradually between June 2015 and February 2017 (see Chapter 3), hence market participants have requested extending CSD operating hours prior to the go-live of T2S, i.e. in June 2015 where possible and by the end of the T2S migration in February 2017 at the latest.

The issue of limited operating hours of CSD links is not new: in 2003, the Giovannini report was already proposing that operating hours of CSD links and settlement deadlines should be harmonised¹¹. In this regard the Giovannini report noted that operating hours of CSD links are not extensive, are not aligned with operating hours of payment systems (TARGET2) and differ depending on the individual CSD link arrangement concerned. This essentially derives from two main interrelated issues: (i) the number of different steps/parties involved in CSD links; and (ii) their respective early cut-off times.

(i) Different parties/steps involved in cross-border transactions

When using CSD links, participants are required to send their instructions well in advance of the cut-off times of the issuer CSD (especially when the transaction has to be processed through relayed links involving several CSDs). The time buffers and cut-off times of the issuer CSD for cross-border transactions are earlier than local cut-offs of CSDs because different steps have to be taken with regard to the instructions sent between the investor CSD and the issuer CSD¹². Different provision check and settlement confirmations should be taken into account. There are also pre-settlement processes, which could delay settlement.

(ii) Overview of cut-off times of CSD links (in CeBM)

Cut-off times of CSD links vary across markets and are often related to local/specific market requirements. Based on an internal survey conducted by ECSDA and ERC in early 2013, the current situation can be summarised as follows for direct links between euro area CSDs settling in CeBM:

- **FOP links:** cut-off times for FOP links are generally between 3 p.m. and 4 p.m., although some links have later cut-off times (between 4 p.m. and 5.45 p.m.).
- **DVP links:** cut-off times for DVP links are generally between 1 p.m. and 3.45 p.m., although some cut-offs are earlier (12.30 a.m.).

2.2 SETTLEMENT IN COMMERCIAL BANK MONEY (COBM)

Some complexities and inefficiencies in the repo market stem from current settlement arrangements in CoBM, which hamper market participants abilities to manage their liquidity on a global basis and use collateralised (repo) transactions for their end-of-day adjustment operations.

Market participants need to reach different cross-border FMIs and counterparties for funding and treasury purposes. Many market participants chose to use intermediaries (such as custodians) to access FMIs because of limitations in (I)CSD access, functionalities and service levels. The use

11 See "Second Report on EU Clearing and Settlement Arrangements", The Giovannini Group, April 2003.

12 See ECSDA report entitled "Cross-border clearing and settlement through CSD links".

of various FMIs and intermediaries may lead to two sources of complexities and inefficiencies in CoBM settlement. One source is related to FMIs (CSDs, ICSDs, payment systems, etc.) and the (I)CSD links in CoBM for cross-border or cross-system transactions. The other source is related to the use of various intermediaries.

It is also noted that there are interdependencies between CoBM and CeBM, i.e. to the extent that the same assets are used for settlement of repo transactions in CeBM and CoBM, inconsistencies may *de facto* “freeze” potential collateral.

This report addresses two sets of issues relating to CoBM settlement, i.e. (i) the use of intermediaries in CoBM, and (ii) the use of (I)CSD links in CoBM.

(i) Use of intermediaries for settlement in CoBM

Many repo transactions in Europe are across borders¹³, and often involve intermediaries, such as international financial institutions, global custodian banks or local custodians (in this report also generally referred to as custodians)¹⁴. Different arrangements involving (various) custodians for the mobilisation of collateral could involve different times for sending settlement instructions in CoBM.

A distinction can be made between “cut-off times” of (I)CSDs and “instruction timelines” of intermediaries. Cut-off times refers to strict deadlines of (I)CSDs, whereby, after this cut-off time, no further instructions can be entered into the system. Instruction timelines of intermediaries are not (hard) cut-off times, but indicate guidelines for clients in the instruction process. Intermediaries can still accept instructions after this deadline, but the later the instruction of the client arrives, the less the intermediary can ensure that it can be passed to the FMI before the market cut-off time. Higher STP-rates of clients allow instruction timelines to be extended, whereas lower STP-rates of clients require the intermediaries to have earlier deadlines to ensure that the instructions can be processed. Therefore, there is typically no unique instruction deadline for the whole client base of an intermediary.

Instruction timelines of the different custodians are not aligned, depend on external factors (such as instructing parties and (I)CSDs) and moreover, are considered by some custodians as part of their competitive service offering. Hence, instruction timelines will not easily move towards a more harmonised approach. In addition, ATs and CCPs could also be involved, and add further requirements on how/when payments should occur in CoBM. On the other hand, it can be argued that settlement in CoBM should be aligned to the changes related to settlement in CeBM, and in particular should take into account the changes of T2S (e.g. extended cut-off times that will be provided by T2S) in order to bring T2S benefits to all market participants.

Feedback to clients/users on the status of settlement instructions should be available in a timely manner¹⁵. In particular, late, infrequent or unsynchronised feedback on the settlement status could hamper the efficient processing of CoBM settlements (possibly leading to delivery failures on transactions). Intermediaries and (I)CSDs often use turnaround times to indicate the interval between receipt of the customer’s instruction and delivery of the settlement confirmation. If instructions do not meet the (I)CSD or the intermediary’s requirements, the instruction has to be queued and processed manually, thereby adversely impacting the turnaround time.

13 See ICMA’s semi-annual survey of the repo market in Europe, September 2013.

14 See “The interconnectivity of central and commercial bank money in the clearing and settlement of the European repo market”, ICMA ERC, 14 September 2011.

15 See also “A white paper on the operation of the European repo market, the role of short-selling, the problem of settlement failures and the need for reform of the market infrastructure”, ERC, July 2010.

(ii) Links in CoBM

Efficient settlement involving links between (I)CSDs is essential for the transfer of securities in the EU. However, restricted operating hours and settlement rules result in the lack of interconnectivity between (I)CSDs.

The most prominent example of a link in CoBM is the “Bridge”, which provides a direct link between Euroclear Bank and Clearstream Banking SA, and allows transactions to be settled between the ICSD’s respective customers free of payment (FOP) or versus payment (DVP)¹⁶. Improvements to the Bridge have occurred periodically to enhance its efficiency (see Box 1).

¹⁶ For more information on the Bridge, see the websites of Euroclear and Clearstream.

Box 1

CHARACTERISTICS OF “BRIDGE” SETTLEMENT

Cross-border settlement through the Bridge has the following characteristics:

- The *instruction deadlines*: The settlement day of the Bridge comprises a *mandatory* settlement period and an *optional* settlement period (during which customers may determine optionality for settlement by means of flags). The *mandatory* settlement period operates from 8.30 p.m. CET until 1 p.m. CET for Bridge instructions, while the *optional* settlement period operates **until 3 p.m. CET** for Bridge DVP instructions and until 4 p.m. CET for Bridge FOP instructions. The mandatory settlement period begins with the start of the night-time processing in the evening of the business day preceding the settlement date and continues into the afternoon on settlement day. The optional settlement period follows the mandatory period.
- *Matching* of Bridge instructions is arranged in order to detect differences or errors in the instructions submitted by the two counterparties. This allows timely and frequent transaction-repair and fail-management information to clients. Bridge instructions are matched through exchanges between the ICSD (i.e. with matching transmissions), which take place in regular intervals: *typically every 30 minutes*, but less regularly outside peak hours (30 times per day).
- *Exchange of settlement-related information* occurs frequently (with file exchanges) to increase of settlement opportunities (15 times per day).
- *Realignment* refers to the process of agreement on any net securities balances outstanding between Clearstream and Euroclear. In particular, since the Bridge could be used for a wide range of securities issued in local CSDs (for which both Euroclear and Clearstream have established a link), transactions settled across the Bridge are booked on the ICSDs’ securities accounts held with the other ICSD, and not in the books of the local CSD where the securities were issued. As a result, the respective securities positions of Euroclear and Clearstream with the issuer CSD should be updated afterwards in order to reflect the effective securities positions held by both ICSDs in the name of their clients¹.

¹ See explanation of Bridge transactions in “Cross-border securities settlement and risk analysis framework for cross-border links”, NBB, 2006.



In order to better support settlement in CoBM, links in CoBM should be enhanced and upgraded regarding:

- ***Deadlines for links in CoBM (aligned to T2S deadlines):*** Current links in CoBM have more restricted cut-off times and settlement windows compared to domestic/(I)CSDs and euro settlement deadlines of T2S. For example, the Bridge currently has a DVP cut-off time of 1 p.m. CET (mandatory settlements) and 3 p.m. CET (optional settlements). However, the T2S cut-off time is 4 p.m. CET (for DVP settlement) and 5.40 p.m. CET (for the bilaterally agreed treasury management window).
- ***Same-day (and intra-day) settlement for links in CoBM:*** Settlement over links in CoBM typically takes place at a number of defined times during the day, which could lead to average turnaround times of up to one hour. In T2S, there will be real-time settlement.

(iii) Joint work of ERC and EBF

In parallel to the work on the current report, a joint group of the European Repo Council (ERC) and European Banking Federation (EBF), supported by the ECB, analysed issues related to same-day settlement in CoBM (see separate report, “Improvements to commercial bank money (CoBM) settlement arrangements for collateral operations”). The objective of the joint work was to detect inefficiencies in securities settlement in CoBM, and the group took the cut-off times as a starting point (recognising that cut-off times are only one dimension of settlement efficiency). The initial results show that counterparty cut-off times for initiating CoBM settlement could be up to three and a half hours before the cut-off of (I)CSDs, for same-day cross-system/cross-border arrangements in CoBM, when settlement instructions are sent via custodians or involve links in CoBM¹⁷.

2.3 EFFECTIVE TRIPARTY SETTLEMENT INTEROPERABILITY

An important development in the European repo market is the growing integration of repo post-trade infrastructures, involving automated trading platforms, clearing through a CCP, triparty collateral management services and settlement at (I)CSD level. The increased use of CCPs over recent years for repo transactions is a noticeable development, i.e. in the euro area, currently more than half of the repo transactions are cleared by CCPs¹⁸.

Triparty collateral management services cover a wide range of services including the selection/allocation of eligible collateral, validating/matching the agreed terms, and initiating settlement instructions. Additional services include the valuation of collateral, substitution of securities, re-use of securities as collateral to access central bank credit, and other services related to custody events, interest payments or tax issues. Such services allow for more efficient settlement and more optimal management of collateral assets during the life of repo transactions. The integration of collateral management, clearing and settlement services improves repo processing.

Currently, however, market participants are constrained to connected infrastructures (referred to as “silos”). More specifically, a particular CCP is typically connected to a triparty agent and (I)CSD (and has no interaction with other triparty agents/(I)CSDs). In view of these constraints, a need for

¹⁷ A fact finding survey was launched by the group with questions to the banking industry on their latest cut-off times for initiating instructions (for fixed income products in selected markets Germany, France, Italy and Spain), which showed that there is a wide variation of cut-off times for similar processes across different institutions. The variations in cut-off times indicate that improvements could be made to some internal processes and to the deadlines for settlement in CoBM through links or with the involvement of custodians.

¹⁸ For developments on the secured money market see the ECB’s “Euro Money Market Study”, December 2012 and “Euro money market Survey”, November 2013.

establishing interoperability arrangements between different triparty infrastructure providers and their settlement systems has emerged. This is referred to as “triparty settlement interoperability” (TSI), and is an initiative that aims to improve the use of collateral in different collateral management and settlement locations in Europe. TSI aims to “unlock” liquidity and reduce costs/increase efficiencies, and the implementation of robust and automated procedures could also reduce systemic risk.

To meet the market’s demand for interoperability, (I)CSDs and CCPs in close cooperation with the European Repo Council (ERC) have started to develop a specific model of triparty settlement interoperability – see Box 2 below. On 15 July 2013, market participants underlined their commitment to delivering triparty settlement interoperability by signing a Memorandum of Understanding (MoU); the MoU was signed by the European Repo Council, Clearstream Banking Luxembourg, Clearstream Banking Frankfurt, Euroclear Bank, and Eurex Clearing.

The CPSS-IOSCO Principles for FMI state that FMIs should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access. In line with these principles, the settlement interoperability model as reflected in the MoU should be developed as a model that supports fair and open access.

Box 2

DESCRIPTION OF TRIPARTY SETTLEMENT INTEROPERABILITY

Interoperability between triparty settlement facilities involves different parties at different levels.

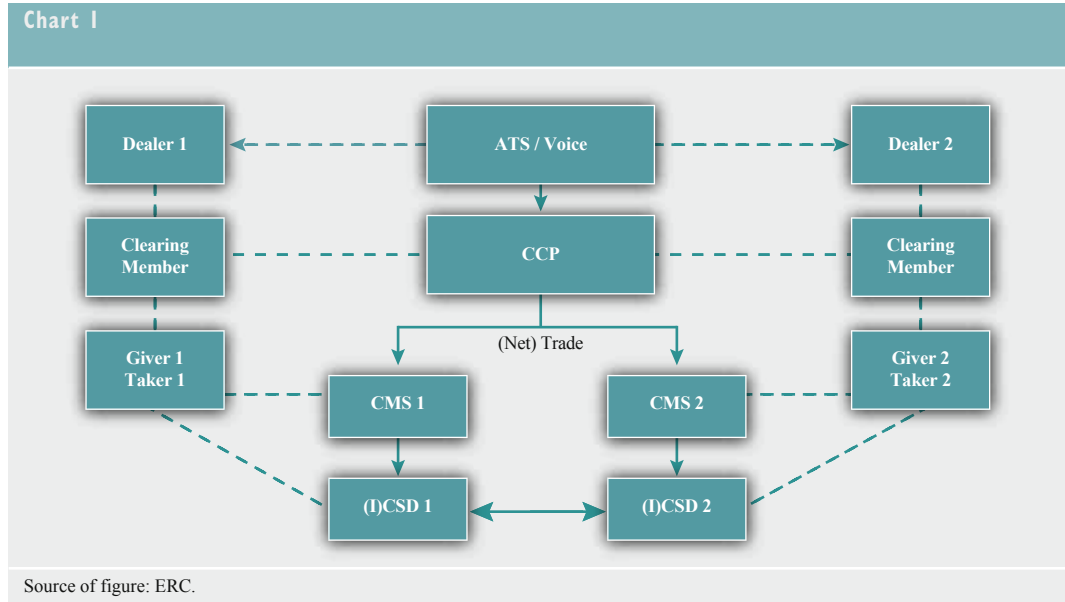
The parties are: (i) the counterparties at trading level, (ii) the CCP(s) supporting GC basket-clearing services, (iii) the triparty collateral management systems (CMSs supporting the allocation/management of collateral), and (iv) the (I)CSDs and payment systems providing settlement on a DVP basis.

The different levels at which parties are involved are:

- **Trading:** The trade occurs either directly between the parties, or involves voice brokers or automated trading systems (ATS). In the latter case, the trading is fully electronic.
- **Clearing:** The CCP performs the clearing and routing to the CMSs. In triparty interoperable solutions (involving multiple triparty CMSs/CSDs), the CCP has to identify the clearing member, triparty agent and settlement location before sending instructions to the CMSs.
- **Triparty collateral management:** The relevant triparty agent automatically selects the eligible collateral and interoperates with the other triparty CMSs.
- **Securities settlement:** The securities settlement is typically performed against payment (DVP), either in CeBM or in CoBM, the former involving TARGET2 in the case of euro operations.

The graph below illustrates the interaction of the different parties in the triparty settlement interoperability model, between the trading level, the CCP clearing level, the triparty collateral management level, and the payment/settlement level.

Chart 1



2.4 TREASURY-RELATED ADJUSTMENTS IN CEBM AT END-OF-DAY ON A CROSS-BORDER/CROSS-SYSTEM BASIS

Treasury-related adjustment transactions refer to operations which are executed between financial institutions (interbank) towards the end of the day and on a same-day settlement basis (end-of-day treasury adjustments). The aim of such operations is to allow treasurers to adjust/square their cash positions following completion of regular settlement operations, including securities settlement operations.

Consistent with the trend identified earlier on the greater use of secured transactions via the repo market, *there is an increased need to support end-of-day treasury adjustments via the repo market*. This implies the need for extended settlement cut-off times at end-of-day to support delivery-versus-payment (DVP) settlement of treasury adjustments, involving both domestic collateral and cross-border collateral.

The launch of T2S will bring a common settlement timetable for treasury-related transactions across T2S markets (see below). However, even with the launch of T2S, dedicated facilities/times are needed for end-of-day treasury adjustments in central bank money on a cross-border/cross-system basis involving (I)CSDs, CCPs and electronic trading platforms.¹⁹ Especially for treasurers (and users of triparty repo and GC funding services), it is important to consider the operating hours for GC services. Treasurers in particular request extended same-day operational activity with DVP settlement (i.e. extended daytime processing). Box 3 provides a few examples of current operating hours of selected GC funding services.

¹⁹ See ERC report entitled “A white paper on the operation of the European repo market, the role of short-selling, the problem of settlement failures and the need for reform of the market infrastructure”: “Batch-processing is a single-event clearing process. Settlement instructions are accumulated into a batch, matching instructions are identified and opposing securities transfers and cash counterpayments netted off against each other, to leave a single net cash payment. This type of process enhances the efficiency of settlement by reducing the call on cash and securities, and by identifying potential fails.” The report is available at http://www.icmacentre.ac.uk/files/euro_repo_market_white_paper_jul10.pdf

Box 3

EXAMPLES OF THE OPERATING HOURS OF SELECTED GC FUNDING SERVICES

- **Eurex Repo Euro GC Pooling:** End of trading is 5 p.m. CET (for Euro GC Pooling transactions with front legs to be settled on the same day). Cash providers are advised to provide liquidity as soon as possible on the TARGET2 accounts used for Euro GC Pooling transactions.¹
- **RepoClear €GC:** Trades are admissible for clearing by LCH.Clearnet Ltd up to 10.30 a.m. CET on the morning of the settlement day². €GC netting and settlement activities occurs on the day of settlement and settlement will then take place in (I)CSDs' daytime settlement window. €GC utilises triparty settlement systems of either Euroclear Bank or CBL (where instructions are scheduled to be settled until 6 p.m.), i.e. for settlement within one triparty settlement system and not across triparty systems.
- €GCPlus is a new clearing service, which is being developed by LCH.Clearnet SA. Settlement will occur in Euroclear Bank and ESES. Operating hours for €GCPlus have not yet been defined. (ESES currently has a deadline of 4.50 p.m. CET for end-of-day instructions to settle in Euroclear Belgium, Euroclear France or Euroclear Nederland until 5 p.m.)

¹ See "Euro GC Pooling: Extension of trading hours for overnight transactions", circular 144/13, 4 December 2013.

² See [http://www.lchclearnet.com/images/sect\(2b\)_tcm6-43743.pdf](http://www.lchclearnet.com/images/sect(2b)_tcm6-43743.pdf).

3 SOLUTIONS AND ACTIONS TO SUPPORT THE REPO MARKET

In order to address the aforementioned barriers to a smooth functioning of the repo market, a number of solutions and actions are put forward. These solutions aim to support a more efficient mobilisation of collateral in the repo market as well as facilitate settlement of treasury adjustments until late in the business day. In particular, the solutions focus on:

1. extended operating hours of CSD links for settlement in central bank money;
2. alignment of DVP settlement practices in CoBM (including enhancement of links in CoBM);
3. establishment of triparty settlement interoperability;
4. establish dedicated facilities/times for EOD treasury adjustments in CeBM.

3.1 EXTENDED OPERATING HOURS OF CSD LINKS FOR SETTLEMENT IN CeBM

Extended operating hours of CSD links in CeBM should take into account T2S cut-off times (see box 4) and Eurosystem requirements on cut-off times of CSD links for the mobilisation of collateral for Eurosystem credit operations²⁰. In addition, operating hours should be in line with the

²⁰ The Eurosystem requirements for SSSs and links are formulated in its "user assessment framework". See ECB website: <http://www.ecb.europa.eu/pub/pdf/other/frameworkfortheassessmentofsecuritiessettlementsystems201401en.pdf>

Eurosystem’s correspondent central banking model (CCBM), which is open for instructions from counterparties until 4 p.m. CET²¹.

21 The Eurosystem established CCBM to ensure that all assets eligible for use in Eurosystem credit operations are available for use by all counterparties, regardless of where the assets or counterparty are situated. The Eurosystem accepts FoP-instructions from counterparties until 4 p.m. CET. See <http://www.ecb.europa.eu/mopo/assets/coll/ccbm/html/index.en.html>

Box 4

T2S OPERATING HOURS OF CSD LINKS AND MIGRATION

T2S will bring a common settlement timetable across T2S markets, thereby removing the distinction between cut-off times for internal-CSD and for cross-CSD operations. T2S will operate on the same days as TARGET2 so that only one harmonised settlement calendar will exist. The T2S operating day will consist of several windows for settlement and common cut-off times (including a late cut-off for end-of-day treasury operations) i.e.:

- the cut-off for regular *DVP transactions is 4 p.m.*,
- the cut-off for *treasury adjustment operations (on a DVP basis) is 5.40 p.m.*¹

The common cut-off times of T2S contribute to removing the Giovannini barriers that prevent efficient EU cross-border clearing and settlement. For the markets covered by T2S, the harmonised cut-off times of T2S will remove Barrier number 7, which was related to national differences in operating hours/settlement deadlines.

First wave 22 June 2015	Second wave 28 March 2016	Third wave 12 September 2016	Fourth wave 6 February 2017
Bank of Greece Securities Settlement System (BOGS)	Euroclear Belgium	Clearstream Banking (Germany)	Centrálny depozitár cenných papierov SR (CDCP) (Slovak Republic)
Depozitarul Central (Romania)	Euroclear France	KELER (Hungary)	Eesti Väärtpaberikeskus (Estonia)
Malta Stock Exchange	Euroclear Nederland	LuxCSD (Luxembourg)	Euroclear Finland
Monte Titoli (Italy)	Interbolsa (Portugal)	Oesterreichische Kontrollbank (Austria)	Iberclear (Spain)
SIX SIS (Switzerland)	National Bank of Belgium Securities Settlement Systems (NBB-SSS)	VP Lux (Luxembourg)	KDD - Centralna klirinško depotna družba (Slovenia)
		VP Securities (Denmark)	Lietuvos centrinis vertybinių popierių depozitoriumas (Lithuania)
			BONY Mellon CSD
			Latvian Central Depository

1 These treasury/adjustment operations in T2S are referred to as “Bilaterally Agreed Treasury Management (BATM)” instructions and include only those trades for which the respective settlement instructions are “flagged” with a specific code to highlight their eligibility for the late settlement window in T2S. T2S will operate the same calendar as TARGET2. Any BATM instructions for the current T2S settlement day received after the 5.40 p.m. cut-off point will not be processed for settlement. These instructions will be recycled for the next T2S settlement day (T+1). For further information on T2S daily settlement regimes and schedules, see T2S securities “Schedule of a Settlement Day in T2SDetailedDescription”.

Migration to T2S will take place in four waves, beginning with the first wave in June 2015 and the last wave in February 2017. The table above shows the start of each wave and the allocation of CSDs per wave.

From the above, it is recommended that operating hours of CSD links should be extended to allow for same-day settlement of regular DVP transactions until 4.00 p.m. on a given day. Regarding the implementation of common/aligned operating hours for CSD links, it is important that the CSDs and custodian banks coordinate the implementation of the necessary changes in their systems.

Timeline: these changes should be implemented by mid-2015 where possible (and by the end of the T2S migration at the latest).

3.2 ALIGNMENT OF DVP SETTLEMENT PRACTICES IN COBM (INCLUDING ENHANCEMENT OF INTEROPERABLE LINKS IN COBM)

This report aims to support ongoing discussions of market participants on “better use of collateral”, in particular to remove structural constraints and inefficiencies in the settlement of collateral operations in CoBM, without aiming to prescribe exact same services/products for market participants. The first section is related to CoBM settlement practices involving intermediaries, while the second section is related to links between (I)CSDs in CoBM.

3.2.1. COBM SETTLEMENT PRACTICES INVOLVING INTERMEDIARIES

A joint group involving members of the ERC and the EBF with the support of the ECB and representatives of (I)CSDs was established to explore current settlement practices in CoBM, and to propose a set of recommendations/principles on the settlement of collateral operations in CoBM. The group considered different processes and arrangements, in particular those involving instructing parties, intermediaries (e.g. custodians), (I)CSDs and the possible use of automated trading systems (ATSS) and CCPs. As a starting point, the work focused on current deadlines for same-day settlement of securities in selected markets and identified possible inefficiencies in CoBM settlement practices (which is reflected in the current early or inconsistent cut-off times).

In the joint group’s report²², a clear description is provided of the different CoBM settlement processes and cut-off times for same-day securities settlement covering both (i) regular EOD operations and (ii) EOD treasury operations. The different business practices are described (including the settlement processing chains and interactions between intermediaries) to allow for the identification of constraints/bottlenecks related to operational differences in settlement systems and market practices. Possible constraints from ATSS and CCPs are also being considered.

Based on the descriptions/analysis, a set of recommendations for CoBM settlement arrangements were developed. Banks, custodians and other actors in the settlement processing chain will be invited to take up these recommendations, with a view to removing the operational differences and inefficiencies in the settlement of collateral operations in CoBM where possible.

22 See “Improvements to commercial bank money (CoBM) settlement arrangements for collateral operations”, published on the ECB’s website.

The recommendations for CoBM settlement arrangements seek to establish improvements to:

1. instructions of trading counterparties (i.e. related to the accuracy of instructions, timely communication between counterparties, and accurate formatting);
2. processes of intermediaries for handling customer instructions (i.e. prompt delivery to the next intermediary in the settlement processing chain);
3. cut-off times of intermediaries (i.e. extension of deadlines);
4. turnaround times within the settlement processing chains (i.e. consistent with the arrangements of financial market infrastructures settling in euro in CeBM);
5. monitoring the status of instructions throughout the settlement processing chain.

To ensure implementation, the recommendations should be further considered and discussed amongst all relevant market participants and stakeholders. It is important to reach out to a broad group of stakeholders, involving (I)CSDs (e.g. ECSDA), financial market participants (e.g. AFME, ICMA, European credit sector associations) and other trade and post-trade key stakeholders. Given the nature of the commercial services involved along the settlement processes in CoBM, it is understood and expected that adherence to these standards of best practices will be driven by market initiatives and by competitive peer pressure.

Box 5

RECOMMENDATIONS FOR COBM SETTLEMENT PROCESSES

1. Instructing parties should ensure that all instructions to intermediaries are complete and correct and transmitted as early as possible.
 - Instructing parties should examine possible improvements to the accuracy of their own internal systems, particularly regarding those systems that report on depot holdings (i.e. information on failed deliveries). This could lead to a decrease in the number of deliveries that fail due to short positions, and should ensure greater efficiency in STP transactions.
 - Instructing parties should improve bilateral communication with their counterparties and have direct contact points with each other in place (particularly in back office/settlement departments) so as to quickly resolve issues such as missing instructions. This is particularly important in the case of same-day trades instructed late in the day, where time is truly of the essence and any delays must be minimised to ensure settlement.
 - Instructing parties should ensure that instructions transmitted for settlement are delivered through industry-standard, secure electronic means and satisfy the formatting requirements of the (I)CSD/intermediary in order to cater for straight-through processing.

2. Under normal circumstances, intermediaries should submit their customers' instructions to the relevant SSS (or to the next intermediary in the settlement processing chain) within 30 minutes of receipt, i.e. without undue delay, provided that the instructions are complete and correct and transmitted as early as possible using industry-standard, secure electronic means, and provided that the customer has the securities to be delivered and/or the cash is available.
3. Intermediaries that are direct (I)CSD participants should ensure they have full capability for submission of customer instructions to the SSS up to the market cut-off (settlement deadline) of the relevant SSS. In other words, on the assumption that specific market practices and limitations in SSS functionalities do not create obstacles, intermediaries that are direct (I)CSD participants should have the capability to:
 - process customer instructions until 3.30 p.m. CET for regular same-day value DVP settlement in euro (in line with CeBM settlement in T2S until 4 p.m.) and
 - process customer instructions until 5.10 p.m. CET to support treasury adjustment operations in euro (in line with the corresponding bilaterally agreed treasury management (BATM) window for CeBM settlement in T2S until 5.40 p.m. CET).
4. Intermediaries should support a turnaround time¹ of no later than 60 minutes, provided that the instructions are complete and correct and transmitted as early as possible using industry-standard, secure electronic means, provided that the customer has the securities to be delivered and/or the cash is available, and provided that the (I)CSD provides its participants with status updates on securities settlement instructions on a real-time or quasi-real-time basis. Short turnaround times are important to integrated repo markets, particularly end-of-day treasury management transactions.
5. Appropriate systems should be established throughout the settlement processing chain to enable the monitoring of the status of instructions from the next party in the settlement processing chain. Intermediaries and (I)CSDs shall aim to promptly inform their respective customers of potential settlement issues (and settlement fails) within 15 minutes of discovery.
 - Where possible, the processing of customer instructions should rely on automatic procedures. The automation of many of these functions should greatly enhance the efficiency of same-day settlement operations. Automation of settlement processes is highly important so as to eliminate manual procedures and build further on ESF-ECSDA proposals.
 - Persistent settlement failures should be investigated to identify the causes and contingency arrangements made to rectify such issues.

¹ Turnaround times indicate the interval between receipt of the customer's instruction and delivery of the settlement confirmation, or other relevant updates to the transaction status.

Timeline: Recommendations for intermediaries involved in the processing of client instructions depend on the changes made in (I)CSDs operating hours (as explained above). The recommendations should therefore be implemented in coordination with the (I)CSD changes by mid-2015 where possible (and by the end of the T2S migration at the latest).

3.2.2. INTEROPERABLE LINKS BETWEEN (I)CSDS IN COBM

The two ICSDs have already committed themselves to enhancing their interoperable links in CoBM (across the Bridge)²³. The focus of these and other ongoing discussions in the industry is on the harmonisation/alignment of operating hours of CoBM and CeBM systems post-T2S, the extension of cut-off times and alignment of procedures to support TSI.

Against this background of the above-mentioned developments, the following principles, which focus on settlement link arrangements in euro, have been put forward. For other currencies, settlement windows and deadlines for CoBM links shall be aligned to the relevant RTGS, i.e. operate as closely as possible to the respective local/domestic cut-offs, ensuring an efficient cash management environment for participants.

The principles promote EU integration by aligning DVP cut-off times for (I)CSD links in CoBM with the cut-off times for CSDs in CeBM (being as close as possible to cash/currency deadlines). FOP settlement is not explicitly covered, but for optimal collateral velocity, cross-(I)CSD settlement of collateral transfers on a FOP-basis should be supported as close as possible to the end of the settlement day of each individual (I)CSD.

23 An “interoperable link” is a CSD link, whereby the CSDs agree to establish mutual technical solutions for settlement in the securities settlement systems that they operate. See proposed CSDR.

Box 6

PRINCIPLES FOR INTEROPERABLE LINKS BETWEEN (I)CSDS IN COMMERCIAL BANK MONEY (COBM)

1. Links in CoBM should ideally be able to ensure real-time settlement or be able to support a full settlement cycle turnaround within an average of 30 minutes with a view to supporting the use of links for: (i) intraday re-use of collateral, and (ii) adjustment operations at the end of the day.
2. The settlement window for links in CoBM should operate until close to 4 p.m. CET for regular same-day value DVP settlement in euro (in line with CeBM links settlement in T2S).
3. DVP settlement should be available for links in CoBM until close to 5.40 p.m. CET to support treasury adjustment operations in euro (in line with the corresponding bilaterally agreed treasury management (BATM) window for CeBM settlement in T2S). The DVP settlement window for treasury adjustment operations in CoBM shall be used exclusively for such operations, enforced by the self-discipline of market participants.
4. Links in CoBM should support settlement interoperability for triparty repo products.

Timeline: the enhancements to interoperable links in CoBM should be implemented by mid-2015 where possible (and by the end of the T2S migration at the latest).

3.3 TRIPARTY SETTLEMENT INTEROPERABILITY

With triparty settlement interoperability (TSI), market participants are able to choose their preferred triparty agent when interacting with counterparties that use other triparty service providers. To gain broad acceptance, the model should meet some conditions from an operational, legal and policy perspective.

- **Operational conditions:** The implementation of triparty settlement interoperability is a complex undertaking from an operational perspective. In particular, a number of changes will be needed related to the internal processing/procedures of market infrastructures. A major operational condition to be achieved is the set-up of an *interoperable basket product(s)*. Such basket(s) will be different from the baskets in the current environment and will need to be maintained/operated under a clear set of rules and conditions. Appropriate rules have to be defined regarding the collateral management of the interoperable basket(s), including the selection and substitution of collateral.
- Another condition is the *interaction between CCP and triparty agents*, which requires efficient connections between them for the synchronisation of the (I)CSDs' collateral management systems (CMS) and the CCPs' operational frameworks. There is especially a need to synchronise certain operational processes, in particular operating hours (cut-off points) and procedures for basket acceptance/margining/reconciliation. However, any such measure should not negatively impact existing efficient products and procedures.
- **Legal conditions:** From a legal perspective, the triparty interoperability arrangements will need to be governed by a *sound contractual framework*. New documentation is also deemed necessary, together with multi-party service level agreements and modifications to the collateral management service agreements between triparty agents and their clients.
- **Policy conditions:** Three policy areas have been identified that deserve attention:
 - Firstly, regarding *risk management*, the need for common/similar definitions/procedures for default and liquidation procedures have emerged along with common contingency action plans. Added to this is the need for a clear approach to operational risk, including system failures and operational disruption. This could be complemented with common margining and reconciliation procedures. These issues will be addressed through a combination of the application of the CPSS-IOSCO Principles for FMIs²⁴ and the implementation of the CSDR and EMIR, together with the future application of relevant statutory, or CPSS-IOSCO Principles, on Recovery and Resolution of FMIs.
 - Secondly, regarding *access policies*, access conditions have to be in line with the CPSS-IOSCO PFMI and legislative frameworks. In the context of triparty interoperability, the CCP needs to obtain access to the (I)CSDs/triparty agents involved in the interoperability

²⁴ See "CPSS-IOSCO Principles for Market Infrastructures": "Fair and open access to an FMI by direct participants, indirect participants, and other FMIs is important because of the critical role many FMIs play in the markets they serve".

model, and vice versa, the (I)CSDs/triparty agents need access to the CCP. On top of this, access should also be ensured between the trading level (e.g. trading platforms) and clearing level (CCP)²⁵.

- Thirdly, *commitment of market participants* is needed. The business case for triparty settlement interoperability should be made more visible to market participants with respect to the benefits in terms of reduction of frictions/in-efficiencies and mitigation of risk, as well as with regard to improving liquidity management.

A list of principles has been developed for guiding the implementation of triparty settlement interoperability.

²⁵ See MiFID/MiFIR, which focus on the trading arrangements and aim to ensure fair and non-discriminatory access to CCPs and trading platforms. MiFID/MiFIR should ensure a level playing field for all regulated trading venues, subjecting them to the same organisational requirements and transparency rules, thus removing any incentive for regulatory arbitrage. See also EMIR. The aim of EMIR is to establish a common EU framework for CCPs (across financial products), promoting the integration, safety and efficiency of the EU clearing space. EMIR covers CCPs access rights to execution venues.

Box 7

PRINCIPLES FOR SETTLEMENT INTEROPERABILITY OF TRIPARTY REPO PRODUCTS AMONG CCPs, CMSS AND (I)CSDS (TRIPARTY SETTLEMENT INTEROPERABILITY (TSI))

1. CCPs shall provide equal and open access to all participating CMSSs.
2. As required by the participating CCPs, participating CMSSs/(I)CSDs shall support the existing triparty repo products of the CCPs (for those baskets and currencies that the CMSSs/(I)CSDs commits to covering), and cater for future developments of these products.
3. Participating (I)CSDs shall conduct settlement in CeBM where practical and available, or establish mechanisms that protect the participating CCPs and participants from credit and liquidity risk arising from the use of CoBM.
4. TSI arrangements shall support the effective risk management of participating CCPs, e.g. in relation to determination of eligible collateral, re-use of assets, valuation, margin requirement determination, allocation of assets (including the management of concentration thresholds), settlement fails, default management, valuation and liquidity optimisation.
5. Participating CMSSs/(I)CSDs shall be able to support all eligible securities and currencies for the respective baskets as defined by the participating CCPs (for those baskets each participating CMS/(I)CSD commits to covering). Participating (I)CSDs shall also align their reference data and asset servicing processes to ensure smooth handling and settlement of securities in the respective baskets within the envisaged settlement times.
6. Participating CMSSs/(I)CSDs shall support turnaround times in TSI as agreed with the participating CCPs for their respective baskets.

Timeline: regarding the introduction of triparty interoperability, the parties to the TSI MoU aim to implement *a solution by the end of 2015*, and at the very latest by the go-live of the third T2S migration wave (September 2016). It is acknowledged that the achievement of TSI within this time line will be challenging considering the complexity of the undertaking.

3.4 DEDICATED SETTLEMENT TIMES FOR EOD TREASURY ADJUSTMENTS

Dedicated times for settlement of end-of-day treasury adjustments are needed so that market participants are able to manage their positions and liquidity with DVP settlement operations on a same-day basis. However, it has to be ensured that these dedicated times are only used for treasury adjustments, which could require self-disciplinary measures by the industry.

DEDICATED TIME SLOT FOR EOD TREASURY ADJUSTMENTS

A dedicated time slot should be defined for end-of-day treasury adjustment operations, which should ideally be aligned with settlement in CeBM money (in Eurosystem services such as TARGET2 and T2S), as well as Eurosystem standing facilities. In addition, possible technical measures have to be considered to support the end-of-day settlement of treasury operations (i.e. to distinguish treasury operations from other collateralised/securities-related operations).

- **Proposed time slot for end-of-day treasury operations is until 5.40 p.m.** This time frame implies a further extension of the cut-off times of (I)CSDs links, but is necessary to allow repos to be used for adjustments and balancing operations at the end-of-day.
- **Technical measures to support the end-of-day time slot:** Technical measures need to be examined in order to a) determine how a dedicated time slot for end-of-day treasury adjustments could work in practice and b) to ensure that only treasury adjustment operations are settled in a dedicated end-of-day settlement window and to avoid the overall/regular securities settlement day being extended until 5.40 p.m. The following technical measures could be considered:
 - **Trading platforms:** Specific rules could be introduced for trading platform members to identify treasury operations for settlement in the dedicated end-of-day time slot. For example, a specific code could be assigned to ensure that such treasury adjustments are appropriately flagged when they proceed to the settlement step. Such an approach in itself, however, cannot exclude counterparties of trading platforms from applying such a code to non-treasury adjustments, although one could consider giving only certain parties (bank treasurers) the option of allocating such a code to operations executed over the trading platform.
 - **Settlement instructions:** The identification of treasury adjustment operations is also to be considered at settlement level. Especially for (I)CSDs not migrating to T2S or doing so in later waves, arrangements should be established, whereby treasurer clients of (I)CSDs “flag” or identify treasury adjustments in the related settlement instructions being submitted to the (I)CSD in a manner similar to that envisaged for the T2S BATM instructions.

Timeline: implementation of the dedicated time slot for EOD treasury adjustments should occur by mid-2015 where possible and by the end of the T2S migration at the latest (CSDs).

SELF-DISCIPLINARY MEASURES TO RESERVE THE DEDICATED TIME SLOT FOR EOD TREASURY ADJUSTMENTS

Contrary to TARGET2, where technical measures were imposed by the central banks to reserve the last hour of settlement for clearing banks to square their end-of-day positions²⁶, the possibilities for technical measures in T2S are not foreseen apart from the inclusion of the dedicated BATM flag. In order to avoid therefore the end-of-day DVP time slot being used for settlement of non-treasury adjustment operations, *self-disciplinary measures* should be established. The introduction of self-disciplinary measures could provide guidance to market participants regarding the implementation of changes. These measures could take the form of new guidelines/standards, or the updating of existing guidelines/standards. For example, ECSDA has worked out standards regarding the timing aspect of settlement processes, which stipulate that the settlement cycle should last at least up to two hours before the central bank system closes.

4 CONCLUSIONS AND FOLLOW-UP

The report focuses on *short-term* measures to improve the functioning of the repo markets which can be implemented within a concrete timeframe and aligned with the implementation of T2S where possible. It is acknowledged that it is not possible for the industry to address all issues at the same time. The following timeframes and actors are involved in the implementation of the improvements to the repo market:

Proposal for actions	Implementation of the proposals	Time and actors
1) Extension of CSD operating hours for settlement in central bank money.	Operating hours of CSD links should be extended until 4 p.m. CET on a given day to allow for same-day settlement of regular DVP transactions.	Timeline: by mid-2015 where possible and by end of T2S migration at the latest Actors: CSDs
2) Enhancement of settlement practices in CoBM.	<i>Recommendations for CoBM settlement processes</i> 1) Instructing parties should ensure that all instructions to intermediaries are complete and correct and transmitted as early as possible. 2) Under normal circumstances, intermediaries should submit their customers' instructions to the relevant SSS (or to the next intermediary in the settlement processing chain) within 30 minutes of receipt, i.e. without undue delay, provided that the instructions are complete and correct and transmitted as early as possible using industry-standard, secure electronic means, and provided that the customer has the securities to be delivered and/or the cash is available. 3) Intermediaries that are direct (I)CSD participants should ensure they have full capability for submission of customer instructions to the SSS up to the market cut-off (settlement deadline) of the relevant SSS. In other words, on the assumption that specific market practices and limitations in SSS functionalities do not create obstacles, intermediaries that are direct (I)CSD participants should have the capability to (i) process customer instructions until 3.30 p.m. CET for regular same-day value DVP settlement in euro (in line with CeBM settlement in T2S until 4 p.m.) and (ii) process customer instructions until 5.10 p.m. CET to support treasury adjustment operations in euro (in line with the corresponding bilaterally agreed treasury management (BATM) window for CeBM settlement in T2S until 5.40 p.m. CET).	Timeline: by mid-2015 where possible, and by end of T2S migration at the latest Actors: EBF, ERC, supported by ECB.

26 The technical measure for TARGET2 was based on use of different message types i.e. exclusion of the use of customer-related MT 103 and MT 102 payment messages during the last hour of TARGET2 settlement and allowing sole use of the MT 202 interbank payment message.

Proposal for actions	Implementation of the proposals	Time and actors
	<p>4) Intermediaries should support a turnaround time of no later than 60 minutes, provided that the instructions are complete and correct and transmitted as early as possible using industry-standard, secure electronic means, provided that the customer has the securities to be delivered and/or the cash is available, and provided that the (I)CSD provides its participants with status updates on securities settlement instructions on a real-time or quasi-real-time basis.. Short turnaround times are important to integrated repo markets, particularly end-of-day treasury management transactions.</p> <p>5) Appropriate systems should be established throughout the settlement processing chain to enable the monitoring of the status of instructions from the next party in the settlement processing chain. Intermediaries and (I)CSDs shall aim to promptly inform their respective customers of potential settlement issues (and settlement fails) within 15 minutes of discovery. Where possible, the processing of customer instructions should rely on automatic procedures. The automation of many of these functions should greatly enhance the efficiency of same-day settlement operations. Automation of settlement processes is highly important so as to eliminate manual procedures and build further on ESF-ECSDA proposals.</p>	
	<p><i>Principles for interoperable links between (I)CSD in CoBM</i></p> <p>1) Links in CoBM should ideally be able to ensure real-time settlement or be able to support as a minimum a full settlement cycle turnaround on average 30 minutes with a view to supporting the use of links for: (i) intraday re-use of collateral; and (ii) adjustment operations at the end of the day</p> <p>2) The settlement window for links in CoBM should operate until close to 4 p.m. CET for regular same-day value DVP settlement in euro (in line with CeBM links settlement in T2S).</p> <p>3) DVP settlement should be available for links in CoBM until close to 5.40 p.m. CET to support treasury adjustment operations in euro (in line with the corresponding bilaterally agreed treasury management (BATM) window for CeBM settlement in T2S). The DVP settlement window for treasury adjustment operations in CoBM shall be used exclusively for such operations, enforced by the self-discipline of market participants.</p> <p>4) Links in CoBM should support settlement interoperability for triparty repo products.</p>	<p><i>Timeline:</i> by mid-2015 where possible and by the end of the T2S migration at the latest</p> <p><i>Actors:</i> (I)CSDs</p>
3) Establishing triparty settlement interoperability (according to the principles of this report).	<p><i>Principles for TSI</i></p> <p>1) CCPs shall provide equal and open access to all participating CMSs.</p> <p>2) As required by the participating CCPs, participating CMSs/(I)CSDs shall support the existing triparty repo products of the CCPs (for those baskets and currencies that the CMSs/(I)CSDs commits to covering), and cater for future developments of these products.</p> <p>3) Participating (I)CSDs shall conduct settlement in CeBM where practical and available, or establish mechanisms that protect the participating CCPs and participants from credit and liquidity risk arising from the use of CoBM.</p> <p>4) TSI arrangements shall support the effective risk management of participating CCPs, e.g. in relation to determination of eligible collateral, re-use of assets, valuation, margin requirement determination, allocation of assets (including the management of concentration thresholds), settlement fails, default management, valuation and liquidity optimisation.</p> <p>5) Participating CMSs/(I)CSDs shall be able to support all eligible securities and currencies for the respective baskets as defined by the participating CCPs (for those baskets each participating CMS/(I)CSD commits to covering). Participating (I)CSDs shall also align their reference data and asset servicing processes to ensure smooth handling and settlement of securities in the respective baskets within the envisaged settlement times.</p> <p>6) Participating CMSs/(I)CSDs shall support turnaround times in TSI as agreed with the participating CCPs for their respective baskets.</p>	<p><i>Timeline:</i> by the end of 2015 where possible and at the very latest by the go-live of the third T2S migration wave, i.e. September 2016</p> <p><i>Actors:</i> TSI MOU participants</p>
4) Implement dedicated times for end-of-day treasury adjustments	<p><i>Dedicated same-day-settlement time slot for EOD treasury adjustments.</i></p> <ul style="list-style-type: none"> - CSD operating hours on a given day should be extended until 5.40 p.m. CET for end-of-day treasury adjustment operations in euro. - Technical measures to support the end-of-day time slot. <p><i>Self-disciplinary measures.</i></p> <ul style="list-style-type: none"> - Self-disciplinary measures should be established to provide guidance to market participants regarding the implementation of changes. 	<p><i>Timeline:</i> by mid-2015 where possible and by end of T2S migration at the latest</p> <p><i>Actors:</i> (I)CSDs</p> <p>Idem</p> <p><i>Actors:</i> European credit sector associations.</p>

Enhancements to Eurosystem collateral management services, namely the removal of the repatriation requirement from the CCBM and support of cross-border triparty collateral management services via the CCBM will be implemented in **May and September 2014 respectively**.

