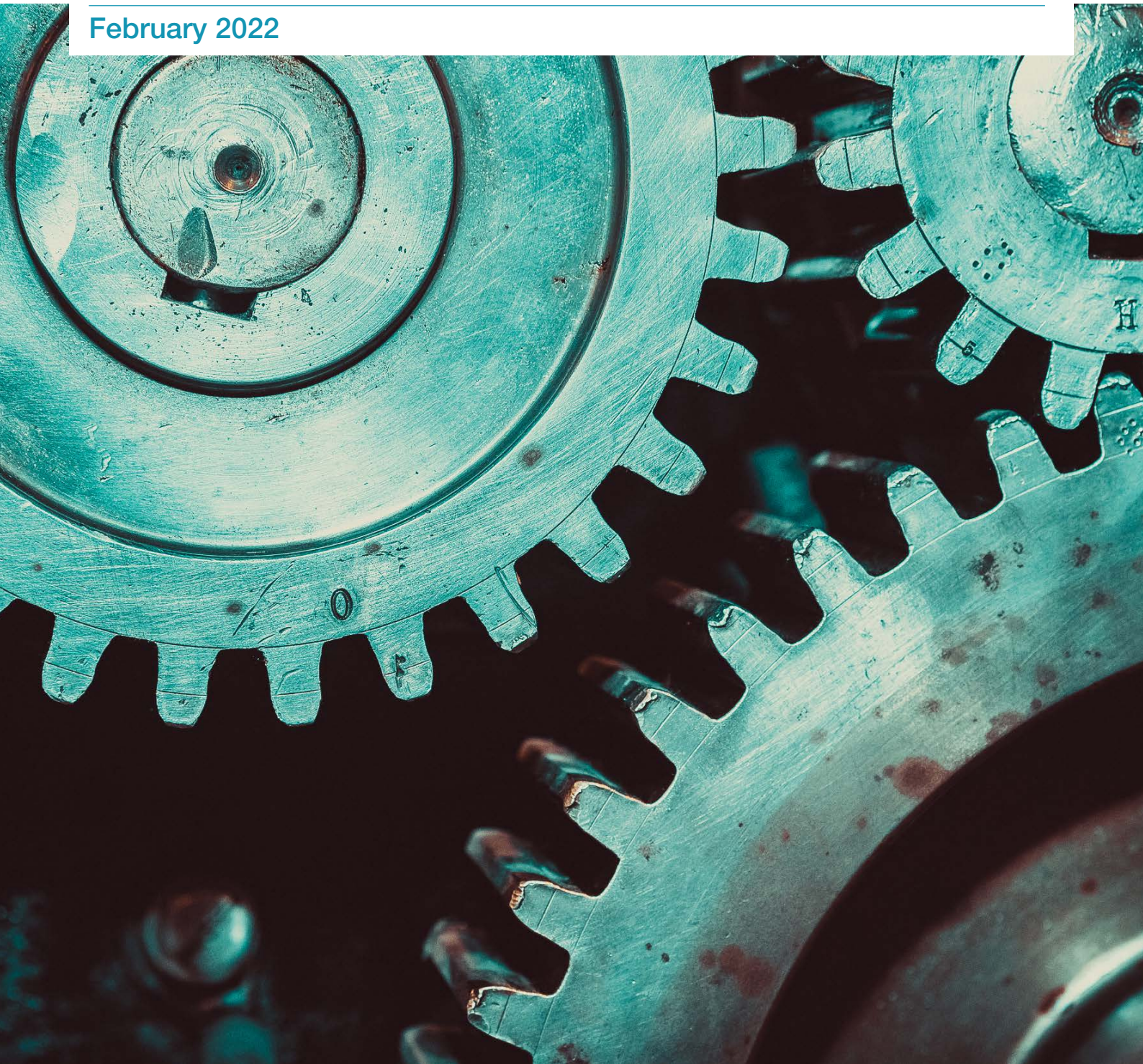
ICMA
International Capital Market Association

Optimising settlement efficiency

A European Repo & Collateral Council discussion paper

February 2022



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Executive summary

In the wake of the go-live of CSDR settlement discipline[1], the ERCC is releasing this discussion paper to focus attention on a number of key opportunities to strengthen settlement efficiency in Europe, which are complementary to the CSDR measures. While ICMA and the ERCC have been supportive of cash penalties, we believe that these should be supplemented by a broader industry effort to support settlement efficiency, focusing on existing tools and processes. In early 2021, the ERCC, led by the ERCC Operations Group, initiated some detailed work to look at the current state of settlement efficiency in European fixed income markets and to identify related opportunities. A number of key issues have been identified and explored further with members in a series of cross-industry workshops. This paper recaps the key take aways from the discussions.

The first part of this paper (chapter 2) focuses on the current state of settlement efficiency in Europe, relying primarily on helpful analysis undertaken by the Eurosystem and the CSDs that form part of TARGET2-Securities (T2S). The analysis indicates that the level of settlement efficiency is already relatively high, especially for fixed income transactions (whether cash trades or repo). However, the figures also show that there is still room for improvement, in particular in times of market stress. Building on these insights the second part of the paper (chapter 3) focuses on the key opportunities identified by ERCC members to help close the gap. More specifically, the focus is on three tools: (i) the shaping of settlement instructions, (ii) partial settlement and auto-partialling and (iii) automatic borrowing and lending programmes offered by a number of (I)CSDs. All three tools, used to their full potential, are considered crucial to help the industry to further reduce settlement fails, mitigate their economic impacts and support market liquidity. The paper also discusses some further opportunities in relation to data, transparency and automation more broadly.

In terms of next steps, an important focus will be on industry best practice. All the opportunities discussed in this paper are already covered to some degree in existing best practices, in particular the ERCC Guide to Best Practice in the European Repo Market. Ensuring that these are followed consistently by all market participants would mark a major step forward. In order to reinforce the message, the ERCC has published, along with this paper, a compilation of existing best practice recommendations, which have been endorsed by the ERCC Committee to show the commitment by member firms to duly follow these best practices for the benefit of the wider market. The issues addressed in this paper go beyond the ERCC and the repo market. Broader discussion and agreement will thus be needed. The intention of this paper is to serve as a starting point for such discussions and the ERCC will pro-actively engage with other industry stakeholders. We are also keen to continue the constructive dialogue with central banks and regulators on settlement discipline, to help achieve a more efficient post-trade environment without having to resort to more extreme measures such as mandatory buy-ins with the associated risks for the liquidity and stability of financial markets.

1 More details on the settlement discipline measures introduced by the EU CSD Regulation (CSDR) and ICMA's related work are available on the ICMA website.

1. Introduction

Settlement efficiency and post-trade efficiency more generally have always been central themes for ICMA's European Repo and Collateral Council (ERCC). Repo desks tend to be closer to post-trade issues than most trading functions given that it is usually part of their responsibility to borrow securities (both for their firms and clients) in order to avoid settlement fails. Frictions in the post-trade space also undermine the critical ability of firms to mobilise and move collateral efficiently through the system to meet the varying demands across the financial markets landscape.

Over past years, the ERCC has supported and actively contributed to a number of important initiatives led by both the public and the private sector aimed at improving the efficiency of Europe's market infrastructure and creating a more harmonised and less fragmented post-trade ecosystem. From this perspective, the EU CSD Regulation (CSDR) which entered into force in 2015, has been an important step, as it provides for the first time a consistent and harmonised framework for settlement services in Europe. Importantly, this includes a set of harmonised settlement discipline measures which will apply from 1 February 2022. ICMA has been supportive of most aspects of these rules, with the notable exception of the mandatory buy-in regime (MBI) which we have criticised consistently as unnecessary and flawed.[2] We therefore very much welcome the recent decision by EU co-legislators not to implement MBIs ahead of the comprehensive ongoing review of the rules as part of CSDR Refit and the additional clarity provided by ESMA.

We see this is as a good opportunity for the industry to come together to pro-actively explore and encourage alternative ways to optimise settlement efficiency in Europe, complementing the measures that CSDR is set to introduce, including cash penalties. In this spirit, in early 2021 the ERCC launched an initiative to identify and analyse existing settlement optimisation tools that are available to firms today, with the aim of better understanding current usage, potential benefits and remaining obstacles, as well as to explore ways to optimise the current setup through best practice and other means. This report explains the background to the initiative and summarises the key findings from the discussions so far.

The ERCC initiative is complementary to the detailed work on settlement efficiency coordinated through the relevant ECB stakeholder groups, in particular AMI-SeCo and the CSD Steering Group (CSG), which is being referenced in this report. ICMA is also collaborating closely on this topic with the relevant market infrastructure providers and other trade associations, including AFME, ISLA and the relevant buy-side associations, and we remain keen to continue and intensify this dialogue. We very much welcome feedback on the paper and look forward to further discussions with industry stakeholders, regulators and central banks.

2 Please note that this refers specifically to the MBI provisions in CSDR. ICMA supports and facilitates the use of contractual buy-ins or similar remedies, eg through ICMA's Buy-in Rules applicable to international bond markets or, in the case of repo, GMRA mini close-out provisions.

ERCC initiative on settlement efficiency: milestones

- **Initial ERCC settlement efficiency workshop (26 February 2021)** – which led to a targeted update of the ERCC Guide to Best Practice in the European Repo Market (published on 30 March) and a set of complementary and aspirational ERCC recommendations to guide further ERCC discussions
- **Targeted follow-up workshops on settlement efficiency:**
  - Workshop #1 – focus on partial settlement & auto-partialling (25 May 2021)
  - Workshop #2 - focus on shaping (2 July 2021)
  - Workshop #3 – focus on auto-borrowing (10 September 2021)
- **ERCC settlement efficiency survey:** To complement the work, the ERCC launched a member online survey on settlement efficiency and the different tools that are being considered in this context. Over 30 firms responded to the survey. The feedback was presented as part of the targeted workshops and is reflected in this report.
- **ERCC panel discussions –** panel discussions on settlement efficiency were part of both ERCC General Meetings in 2021 – recordings are available on the ICMA media library
- **ERCC Operations Group:** The ERCC initiative has been coordinated through a dedicated sub-group of the ERCC Operations Group which met on a weekly basis throughout 2021 to support the work. The group includes several members of the ERCC Operations Group, led by its co-chairs James Upton, LCH, and Nicholas Hamilton, JP Morgan, who also represents the ERCC on the ECB's AMI-SeCo and the CSG workshops on Market Settlement Efficiency.

2. Settlement efficiency in Europe

2.1 Measures of settlement efficiency

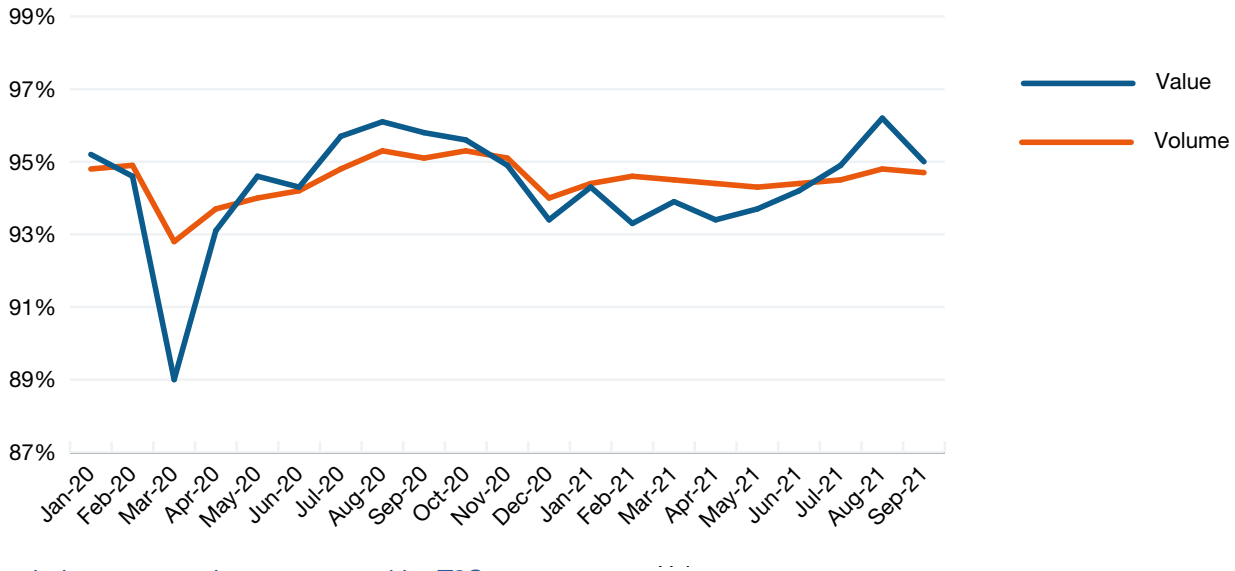
Where are we in terms of settlement efficiency in Europe? This is not an easy question to answer. Firstly, publicly available information on settlement efficiency is still very limited, especially as regards more granular data points, such as distinctions by asset class. Secondly, there is no fully harmonised measure for settlement efficiency. In fact, there are many different ways to define and count settlement fails. What is considered to be the most relevant measure largely depends on the perspective of the interested user.

From a T2S perspective, settlement efficiency figures published by the ECB prior to 2020 focused primarily on the efficiency of the platform itself. In January 2020, the methodology changed to a more market-based settlement efficiency indicator which focuses on the behaviour of T2S participants. This led to a decline in reported settlement efficiency levels. For 2020, T2S reported monthly average settlement efficiency rates in terms of volume, ie the share of the total number of trades that settled successfully by the end of the intended settlement day (ISD), between 92.8% and 95.3% across all asset and transaction types (see chart 1) with an average over the full year of 94.5%. In absolute numbers, this means that on average 14,418 transactions remained unsettled by the end of each settlement day.[3] For 2021, the latest figures reported by T2S are very similar with an average efficiency rate of 94.5% in volume terms up to and including September.

Settlement efficiency expressed as a share of the total transaction value is not significantly different from the volume-based measure on an aggregate level[4], but more volatile. This highlights an important point, which is the potential impact that market conditions can have on the level of settlement efficiency. For example, in March 2020 at the peak of the Covid-19 induced market stress, fail rates spiked in the face of significantly higher transaction volumes and operational challenges as firms adjusted to working remotely. The monthly average efficiency rate in value terms dropped by nearly 6%-points to 89%, and anecdotal evidence suggests that daily fail rates peaked at around 4-5 times their usual level. A similar pattern has been observed, albeit to a more limited extent, in periods of market stress in the past, most notably around recent year-ends.[5]

3 This includes all outstanding settlement fails irrespective of their actual ISD. In terms of length of fails, the T2S figures show that out of all the transactions that remain unsettled by the end of ISD, around 40% settle on either ISD+1 or ISD+2. Only around 1% of fails remain outstanding for more than 16 days.
4 The average settlement efficiency rate in value terms reported by T2S was 94.4% in 2020 and 94.3% in 2021 (Jan-Sep)
5 See ICMA ERCC report Closed for Business: A post-mortem of the European repo market break-down over the 2016 year-end (February 2017) and following year-end reports, all available on the ERCC webpage.

Chart 1: Settlement efficiency in T2S, as a % at end-of-day (January 2020 – September 2021)[6]



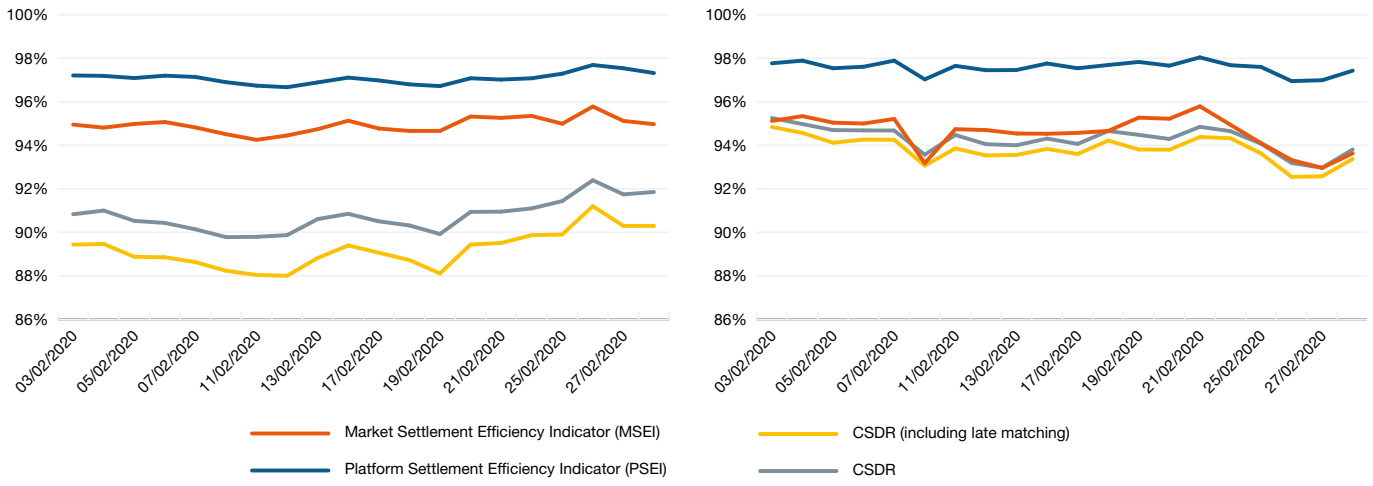
Source: ECB website – transactions processed by T2S

The upcoming implementation of the harmonised settlement discipline regime under the EU CSD Regulation (CSDR-SD) in February 2022 will introduce a new definition of settlement fails. This will become the new reference point for settlement efficiency in the EU, given that it determines the application of settlement efficiency measures, in particular cash penalties, as well as the related regulatory reporting requirements for CSDs. In 2018, the ECB established a workstream under the CSD Steering Group (CSG) to analyse different drivers of settlement efficiency within T2S and to assess possible improvements. The workstream also started to develop a measure for settlement efficiency which aims to mirror the CSDR definition.

In this context, the CSG produced a detailed analysis of the state of settlement efficiency as defined in CSDR, using February 2021 as a (fairly typical) reference month. The analysis shows that for the T2S platform a CSDR settlement efficiency measure would be systematically below previous measures, especially in volume terms (see chart 2). The difference is a result of the broader fail definition introduced by CSDR and mainly related to two factors: (i) under CSDR all instructions that are kept on hold (either by the user or by the CSD) will be counted as fails, and (ii) instructions that match late, ie after the cut-off time on the intended settlement date (ISD) are equally considered as fails, and therefore subject to penalties (calculated in retrospect). As chart 2 shows, based on this definition, the CSDR settlement efficiency rate (across all instruments) is around 5-7% points lower than other measures in T2S in terms of volume, while being relatively close in value terms to the business-oriented measure currently used.

6 Note: Market settlement efficiency indicator (MSEI), which includes party-on-hold transactions, but excludes transactions internally generated by T2S, transactions related to corporate actions and liquidity transfers.

Chart 2: T2S settlement efficiency rates by methodology in February 2020, as % of total volume and value of transactions (at end-of-day)



Source: T2S Annual Report 2020

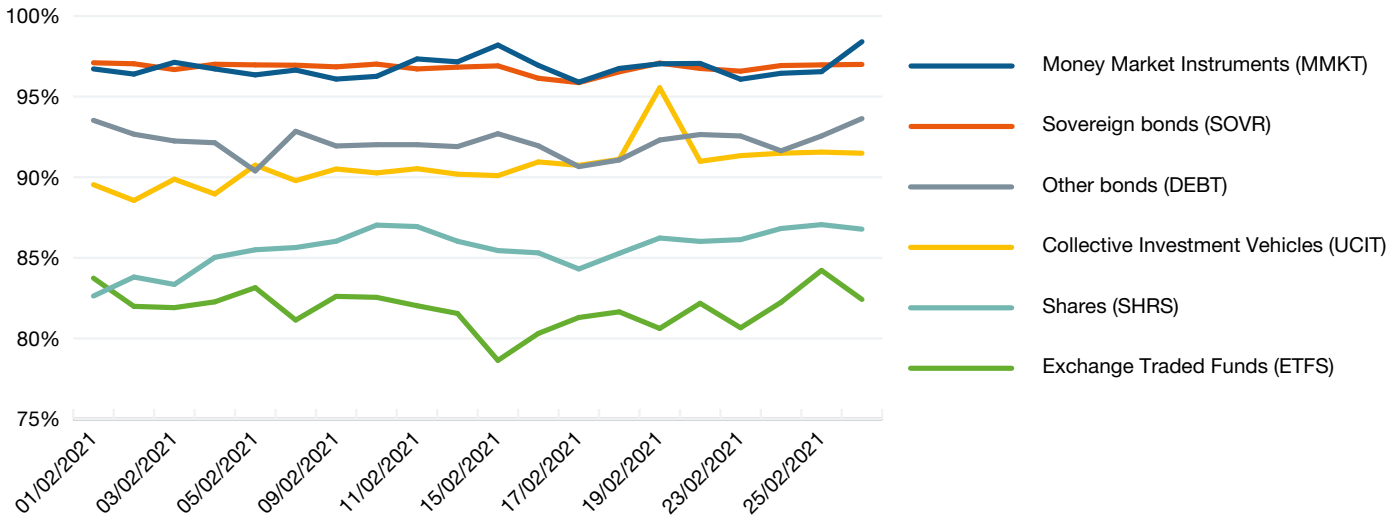
The same analysis also included a detailed view of settlement efficiency per asset class, which showed significant differences. From a fixed income perspective, the analysis distinguished between sovereign debt instruments (SOVR) and other, mainly corporate debt (DEBT). It is important to note that this includes both repo and cash bond transactions, as there is currently no distinction possible at the settlement level. We come back to this point in section 3.4. As shown in table 1, for both fixed income segments the CSDR settlement efficiency rate (including late matching) is well above the overall average. For government bonds, settlement efficiency in the reference month was 96.3% in value terms (96.8% in volume) and for corporate bonds 95.7% in value terms (92.2% in volume). Chart 3 below shows that the efficiency rates for other asset classes vary significantly, with shares and ETFs at the lower end of the spectrum with average settlement efficiency rates of 87.7% and 80.83% respectively in volume terms.

Table 1: T2S CSDR settlement efficiency for fixed income instruments (February 2021)

Asset class	Value (settled on ISD)	Volume (settled on ISD)
All	94.21%	89.57%
Sovereign bonds (SOVR)	96.27%	96.80%
Other bonds (DEBT)	95.70%	92.17%

Source: Analysis prepared by the T2S operator for the 5th Market Settlement Efficiency workshop

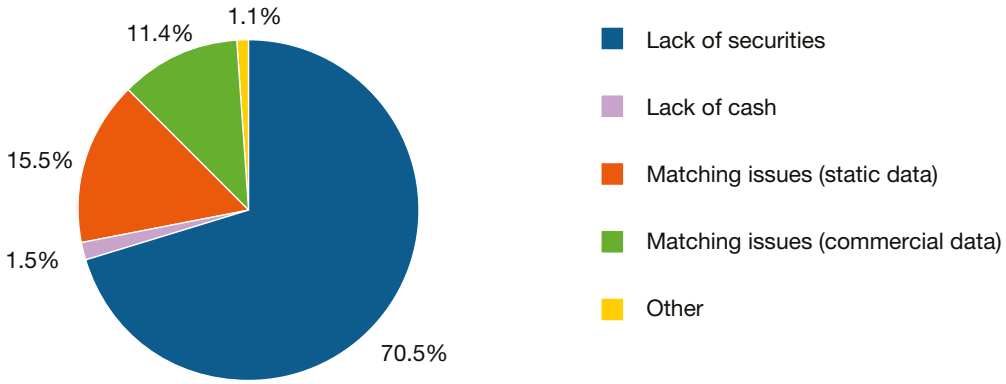
Chart 3: T2S CSDR settlement efficiency per asset class (February 2021)[7]



Source: Analysis prepared by the T2S operator for the 5th Market Settlement Efficiency workshop

In addition to efficiency levels, it is also important to look at the underlying causes of settlement fails. As part of the ERCC settlement efficiency survey undertaken in summer 2021, we asked respondents to indicate the most common causes for fails. As expected, the results show that a large majority of settlement fails are due to the seller not being able to deliver the sold securities on time, accounting for over 70% of all fails. This is followed by problems related to the matching of instructions, which causes around 27% of fails. A lack of cash and other reasons together only account for around 3% of total fails. These results are broadly in line with the T2S analysis mentioned above which also looked at the question, albeit from a slightly different angle, concluding that over 80% of fails (in volume terms) were due either to a lack of securities or instructions being on hold (which will mostly amount to the same reason, ie the securities not being available). A lack of securities can in turn be due to a variety of reasons. Respondents to the ERCC survey highlighted pending receipts from other transactions as the most common cause for a failure to deliver securities, followed by problems to source illiquid securities. This highlights another important point, namely the complexity of settlement chains, as a single settlement that fails (eg due to market illiquidity) can naturally cause knock-on impacts to further settlements.

Chart 4: Main causes for settlement fails (ERCC settlement efficiency survey)



7 Note: CSDR indicator, including late matching transactions

2.2 Optimising settlement efficiency

While we have seen that CSDR settlement efficiency rates in T2S are lower than previous efficiency measures, does that mean that we have a problem with settlement efficiency in Europe? First of all, it is important to note that, besides the lack of a single measure, there is also no agreed target level for settlement efficiency. One of the objectives of CSDR is certainly to improve settlement efficiency, and this has been justified by the observation of higher fail rates for cross-border settlements as opposed to domestic markets. However, regulators have never specified any concrete quantitative target. Ultimately, optimising settlement efficiency is very much about balancing the economic (and systemic) benefits from improved settlement efficiency with the operational costs of achieving such an improvement, eg firms investing in internal processes or broader market infrastructure developments. While a reduction of fails to zero would seem like a good idea in theory, it is highly doubtful whether this is desirable or even achievable. This is particularly true in Europe where, despite good progress over the over the past years, the market infrastructure remains somewhat fragmented along national borders. This results in additional complexity and frictions for cross-border settlements and consequently higher fail rates than would be the case in a fully integrated single market with a centralised infrastructure.

That said, from a fixed income perspective, the figures do not seem to suggest a significant problem with settlement fails. The general level of settlement efficiency is high, especially for sovereign bonds. However, ERCC members do see some scope for further improvements and in particular a need to mitigate the impact of fails in stressed market conditions. Cash penalties and other settlement discipline measures to be introduced by CSDR in February 2022 are expected to have a positive effect. Cash penalties provide an economic incentive for firms to make every effort to deliver securities on time, which should be particularly effective in the current negative rate environment, and they will also encourage firms to invest in their post-trade processes to seek efficiencies, ensure straight-through processing (STP) and to achieve scalability through automation. However, as pointed out above, the vast majority of settlement fails are not intentional but the result of either market illiquidity or pending receipts from other transactions. The scope for cash penalties to directly address these issues is limited. There are other tools that are much better suited to help firms resolve fails, mitigate their economic impact and ultimately to support market liquidity, which is key in particular during times of stressed and volatile markets.

ICMA believes that the upcoming implementation of CSDR-SD is an opportunity for the industry to come together and to pro-actively seek ways to further optimise settlement efficiency, in particular by making better use of existing settlement optimisation tools.

In early 2021, the ERCC launched an initiative to promote a wider discussion on settlement fails, analyse existing bottlenecks and agree concrete suggestions to support and improve settlement efficiency levels in Europe. As part of the initial discussions, members identified three key opportunities to be tackled as a priority, namely:

1. Shaping of settlement instructions,
2. Partial settlement and auto-partialling,
3. Auto-borrowing functionality offered by some (I)CSDs.

The selection of these three particular tools is based on their potential impact in terms of settlement efficiency, recognising the significant scope for improvements in terms of market coverage and usage, as well as the relatively limited effort required to effect these improvements. In short, all three tools are seen as relatively quick wins that could make a substantial difference if implemented and utilized on a systemic scale.

3. Opportunities

As part of this initiative the ERCC held a series of focused workshops to explore the benefits and limitations of each of these tools in more detail. The next section is based on the outcome of those workshops. As a starting point, it is important to note that shaping, partialling and auto-borrowing are complementary tools. As they fulfil distinct functions, they should all be considered part of a larger "toolbox". Furthermore, there is a logical sequence which is important to keep in mind when we look at the benefits and challenges with each of the tools:

3.1 Shaping

3.1.1 What is it and why does it matter?

Shaping is the practice of splitting (or shaping) the delivery of large amounts of securities or collateral into several smaller deliveries. It is important to note that shaping is an operational process that usually applies at the level of the settlement instruction, ie after trade execution and trade confirmation. As such, shaping does not change the legal obligation on the delivering party to deliver the full agreed amount of securities/collateral, but it helps to reduce the economic impact of settlement fails on the market and can also significantly reduce firms' intraday liquidity consumption, ie the need for firms to use intraday credit to fund delays in the settlement process. Shaping can either be agreed bilaterally between counterparties or it can be applied automatically at the level of the relevant market infrastructure (trading venue, CCP or CSD).

In Q3 2019, Euroclear Bank ran a simulation focused on the overnight settlement process to estimate the effects of introducing automatic shaping of settlement instructions at a size of EUR/USD 50 million. This showed that the potential benefits are significant. At the end of the overnight settlement process, automatic shaping led to a 5% increase in settlement efficiency and a 3% decrease in intraday liquidity needs.

3.1.2 Current usage

In the case of repo, the ERCC Guide to Best Practice in the European Repo Market already recommends shaping of all repo transactions at a size of 50 million nominal in EUR, GBP and USD (see box below). So far, there is no equivalent best practice that applies to cash bond trading.

Current best practice recommendation on shaping (ERCC Guide to Best Practice in the European Repo Market (paragraph 2.69):
It is best practice to divide or 'shape' instructions for the delivery of a large amount of collateral into smaller deliveries or 'shapes', so as to limit the economic impact of settlement failures. Accordingly, **it is recommended that parties in the European repo market should agree to shape transactions into multiple deliveries of 50 million in EUR, GBP and USD**, and the nearest equivalent in other currencies or the amount mandated or generally accepted in other currencies. Note that shaping does not break up a transaction into smaller contracts. It is a purely operational process. Note that shaping does not break up a transaction into smaller contracts. It is a purely operational process.

While some market participants attempt to shape in accordance with best practice, our analysis and discussions have shown that this is currently not done on a significant scale. Unless performed by a market infrastructure, as discussed below, shaping is a very manual process which requires bilateral agreement. This significantly limits the scope for application. In order to encourage a broader application of shaping, the process would need to be automated. There are examples where this is already the case today. In particular, this is true for most CCP-cleared trades as both major European CCPs have adopted automatic shaping (see details below). It is important to note that in both CCPs shaping takes place after the initial netting process to avoid reducing netting efficiency.

- **LCH RepoClear** automatically shapes all repo instructions into lots of 50 million nominal for all euro-denominated debt and also for specific gilts. For the Term £GC product (DBV) it has been decided to maintain a shape size of 250 million, due to the large average deal size, a very low level of fails and hence comfort with a larger shape size.
- **Eurex Clearing** generally shapes all repo instructions (fixed income) at 50 million nominal. GC Pooling Repo is also shaped, either at 50 million (ECB/ECB EXT Basket GBP&CHF, INTMXQ/Equity Basket) or 200 million (ECB / ECB EXT Basket EUR&USD, CTD France/Germany/Italy Basket).

This still leaves the non-CCP-cleared market segment which requires manual shaping. As explained, this is more challenging due to the necessary bilateral agreement and operational burden involved. As shaping happens ahead of the settlement process, it is not easy to estimate the extent to which trades are already being shaped today, especially in the non-CCP cleared market segment. However, statistics provided by T2S and both ICSDs provide a good indicator for the potential that a broader application of shaping holds.

In response to an ERCC request, the CSG analysis mentioned above included some useful statistics in relation to the size of settlement instructions in T2S. Considering the market practice to shape at a nominal size of EUR 50 million, we asked the CSG for a view on the share of fixed income settlement instructions in T2S that are lower, equal to, and larger than this threshold. The analysis shows that instructions of exactly 50 million (which in many cases will be the result of shaping) represent 3% in terms of volume, accounting for 16% of the total value; and much of which is probably explained by automatic shaping of CCP-cleared trades. Perhaps more importantly, as regards instructions over 50 million, the analysis showed that while these only account for 5% of the total number of instructions, this represents 41%, and hence a very sizeable share of the total transaction value.

We asked the ICSDs to provide the same statistics. The results are similar. Euroclear Bank reported that settlement instructions equal to 50 million accounted for 3% of the overall volume, representing 6% of the total value. Instructions larger than 50 million only accounted for 1% of the volume, but 46% of the total value, which is an even larger share than in T2S. In CBL, instructions equal to 50 million accounted for 8% of the total value, while instructions larger than 50 million had a share of 36% of the total value. Overall, the figures demonstrate that there is significant potential for a much wider application of shaping, with the corresponding benefits in terms of settlement efficiency. Given their relatively large transaction size, shaping will be especially impactful for repo trades.

The US market provides an interesting benchmark in terms of shaping, which is applied on an automated basis across all asset classes at the level of the CSD. This is a result of a Federal Reserve policy which introduced a fixed cap on all securities movements at USD 50 million. This means that the relevant CSDs automatically break down all settlement instructions into lots of USD 50 million or less, where they are not already shaped by the inter-dealer brokers. While it is not easy to quantify the impact in terms of settlement efficiency, shaping seems to be well-established practice that is generally deemed efficient and non-controversial. However, there are some potentially exceptional scenarios, such as treasury auctions, where it is being considered whether the shape size should be increased, also given the low settlement risk involved.

3.1.3 Conclusions

Feedback received in response to the ERCC settlement efficiency survey showed a clear consensus among respondents in favour of introducing automatic shaping in Europe. In fact, out of the 30 responses received, 29 supported the introduction of automatic shaping across the board. This was confirmed by the ERCC workshop on shaping held in July 2021.

- **Level of application:** While there was general agreement on the desirability of automatic shaping, views expressed in the survey were more divided on the appropriate level at which shaping should apply, ie whether this should be applied by the trading platform at the point of trading or at settlement level by the CSD. An equal number of survey responses favoured each option. However, in the subsequent workshop discussions participants agreed that trading platforms would be the most straightforward starting point. While this does not ensure full coverage, as OTC trades are not captured, it was considered more achievable as a "quick win", whereas implementation at CSD/T2S level would likely require a longer and more complex process in terms of discussion, approval and IT build involving a multiplicity of stakeholders.
- **Next steps towards adoption:** It was agreed that further discussions with the platforms are needed to explore the possible scope and any concerns with the proposed adoption of automatic shaping. The cost implications are expected to be relatively limited compared to the benefits of shaping (direct and indirect) and could be addressed in a second step. That said, it was also recognised that the introduction of shaping should be economically neutral for the infrastructures that are expected to automate the process. Once the details are clearer on how shaping can be applied at trading platform level, it will have to be discussed whether the scope is sufficient or whether additional validation/ shaping needs to apply at the settlement/CSD level and how this could be achieved.

3.2 Partial settlement

3.2.1 What is it and why does it matter?

Similar to shaping, 'partial settlement' or 'partialling' involves settling a transaction in a series of two or more deliveries. However, unlike shaping, partialling generally applies later in the trade lifecycle, namely after submission and matching of the settlement instructions. It can either be agreed bilaterally between the parties or it can be automated at the level of the CSD, a functionality referred to as 'auto-partialling'. Auto-partialling automatically identifies the availability of securities for partial settlement and implements such settlement. In terms of timing, partialling can be applied either on ISD to prevent a fail on the full outstanding amount or it can be applied after the end of ISD to gradually resolve an outstanding settlement fail. In that sense, partial settlement can be both a preventive tool as well as a tool to mitigate the impact and gradually resolve fails. In a repo context, partial settlement can be applied both on the purchase leg or on the repurchase leg (provided the buyer has not terminated the repo or the seller has not executed a mini close-out[8]).

'Partialling' is desirable as it reduces the economic impact of fails on the market as well as intraday consumption by the counterparty. In particular, partial settlement supports the liquidity of cash and repo markets since it ensures settlement as soon as the securities become available, which in turn should help resolve fails throughout the settlement chain as long as all parties involved participate.

3.2.2 Current usage

The recent update to the ERCC Guide to Best Practice strengthened the recommendations related to partial settlement and introduced a new recommendation related to the use of auto-partialling functionality. Accepting partial deliveries is generally optional for the receiving party. However, the Guide strongly recommends that all parties accept partials whenever possible. The Guide also recognises the benefits of auto-partialling, recommending that all firms sign up to the facilities whenever available. In March 2020, AFME published a set of related best practice recommendations covering manual partial settlement, auto-partialling as well as partial release functionality, which is further discussed below.

8 Contractual right under the GMRA for the seller to terminate a repo transaction following a failure by the buyer to return securities. See ICMA's Repo FAQs for a more detailed explanation

Partial settlement and auto-partialling is covered in some detail in the ERCC Guide to Best Practice in the European Repo Market (paragraphs 2.70-78).

Related **best practice recommendations:**

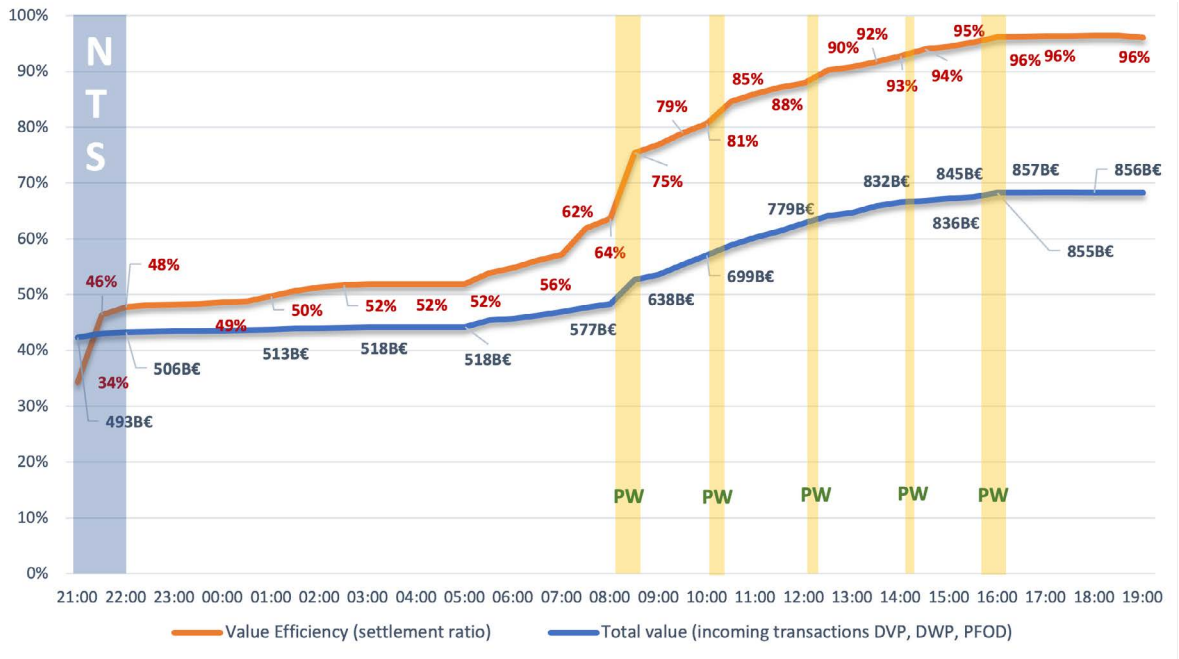
- It is best practice for partial deliveries to be accepted whenever there has been a delivery failure, provided that the party expecting delivery would not be disadvantaged by an incomplete delivery and provided that partialling is operationally feasible for both parties. Market users should make best endeavours to eliminate operational obstacles within their own firm and encourage customers to accept partial delivery.
- It is best practice for partial settlement to be completed as swiftly as possible
- It is best practice for parties to opt into the use of auto-partial facilities at CSDs. Auto-partial settlement should not be for less than the minimum tradeable amount in the market for the security being partially delivered.

From a regulatory perspective, partial settlement is encouraged by CSDR. The relevant RTS on settlement discipline require CSDs to allow for the partial settlement of instructions, but also offers a derogation from this requirement subject to a threshold in terms of settlement volume and efficiency. Partial settlement is also mandatory ahead of any mandatory buy-ins being applied, although this requirement will not become effective in February 2022 given the ongoing review of the MBI regime.

Applied on a manual basis, partial settlement suffers from the same problems as shaping, as it requires bilateral agreement and can lead to significant operational challenges and costs. This limits its usability.

Many CSDs already offer auto-partialling facilities. As an automatic process, auto-partialling enhances the efficiency of settlement across the market and avoids the limitations of manual partial settlement. In T2S, auto-partialling functionality has been available since the go-live of the platform in 2015 as an optional optimisation feature, although it has undergone some changes since then.[9] Today, there are five dedicated windows in T2S during which auto-partialling is applied. Chart 5 below shows these windows through the settlement day along with the associated settlement efficiency rates, illustrating the positive impact that auto-partialling can have, particularly early in the settlement day. Since inception, the windows have been reviewed by T2S in consultation with market participants and adjusted twice to improve efficiency.

Chart 5: Evolution of settlement efficiency for fixed income instruments in value through the day (left-hand scale: % settlement efficiency, right-hand scale: total value in EUR billions)



Source: Analysis prepared by the T2S operator for the 5th Market Settlement Efficiency workshop

9 For more details, see: Insights on partial settlement (ECB, April 2021)

Auto-partialling is also offered by both ICSDs. Euroclear Bank introduced the tool in June 2020 for internal transactions and extended it to Bridge transactions in February 2021. External transactions, in particular flows into T2S, will be included in January 2022. Similarly, Clearstream introduced auto-partialling in February 2021 (both for internal and Bridge transactions) and is planning to extend the functionality to external transactions but has not yet announced a target date. Importantly, in all cases the usage of auto-partialling is optional. Clients can opt out of the service in full or specify the eligibility of transactions at an instruction level. Auto-partialling can only be applied if neither participant opt out of auto-partialling for a given transaction.

From a CCP perspective, auto-partialling is considered an important tool to manage settlement fails. The major CCPs confirmed that they are facilitating auto-partialling whenever offered by the relevant CSD and are actively encouraging clearing members to make use of the tool, however, without policing its use.

As part of the CSG work on settlement efficiency, the ECB provided some statistics on the actual use of the auto-partialling functionality in T2S, which highlighted the persistence of significant gaps due to participants opting out.[10] Between October 2019 – May 2020, around 40% of instructions (in volume terms) were eligible for auto-partialling, although these represented a more significant share of around 65% in value terms. The analysis also showed that 15% of all transactions settled on an average business day involve at least one partial settlement.

In the ICSDs where auto-partialling was introduced more recently, usage is still lower but has been gradually increasing. Euroclear reported that eligibility has reached 60% in value terms. In Clearstream, where the functionality was introduced later, around 30% of transactions (in value terms) are currently eligible for auto-partialling. From a CCP perspective, according to recent data from the ICSDs shared by LCH, around 60% of LCH RepoClear members who settle through the ICSDs are applying auto-partialling for the relevant asset classes, with the most active clearing members using auto-partialling.

The ERCC settlement efficiency survey, which included several questions on auto-partialling also confirmed some significant gaps. The feedback showed that 55% of respondents[11] currently do not apply auto-partialling across all (external) fixed income settlements. In terms of reasons, respondents mentioned specific opt-outs being applied to certain products and markets, but also pointed to the fact that auto-partialling is still not available in all markets (eg outside of Europe). A large majority (75%) indicated that they are attempting to apply manual partialling where auto-partialling is not available or feasible. According to the feedback, on average 58% of these manual partialling attempts are successful, but respondents also noted challenges with counterparties being unwilling to accept partial deliveries or a failure to complete the process on time given its manual nature.

3.2.3 Conclusions

There is a strong consensus among ERCC members that auto-partialling is an extremely important tool to support settlement efficiency. However, it was noted that there is still significant scope to increase usage of the tool to help optimise settlement efficiency. It is recognised that auto-partialling needs to apply across the whole settlement chain to work effectively and to avoid bottlenecks.

- **Shaping vs partialling:** As part of the workshop, participants discussed the differences and overlaps between shaping and auto-partialling and agreed that the tools should be seen as complements rather than substitutes. They both achieve a similar result, but they do address distinct issues and scenarios and should therefore both be actively encouraged. While shaping is less targeted and efficient than auto-partialling, it is also relatively straightforward and can be implemented across the board on an automated basis, without being subject to opt-outs and technical constraints, as is the case for auto-partialling. Shaping is obviously particularly useful in scenarios where auto-partialling does not apply.

10 T2S analysis prepared for the 4th Market Settlement Efficiency workshop (October 2020)
11 Note: Similar to the CCP figures, the survey only captured a subset of market participants, mainly larger sell-side institutions. The results are not representative for the wider market.

- **Ensure full coverage:** As a prerequisite, all market participants need to have access to auto-partialling functionality, which means that it is important for all CSDs to offer the service to their participants and for custodians to make the functionality available to all their clients. As discussed above, this is largely the case today, although some markets still do not seem to have adopted auto-partialling yet.
- **Promote partial release:** One important technical obstacle for auto-partialling is related to the use of omnibus accounts by custodians. While omnibus accounts allow for auto-partialling on receipts, custodians cannot implement the tool for deliveries if client assets are not segregated, given the risk of mixing client assets. A technical solution to the problem is the so-called 'partial release' functionality, which allows custodians to use the hold and release functionality in a targeted way so that auto-partialling can apply. Partial release functionality is already available in T2S (since November 2019) and was more recently implemented in Clearstream (November 2021). Euroclear Bank has not yet confirmed the timeline for implementation of partial release. It has been noted that partial release is a key dependency for custodians and should be universally available. Where available, global custodians and sub-custodians should adopt the tool in order to be able to offer auto-partialling to their clients.
- **Reluctance to accept partials:** There are other reasons why some firms are reluctant to accept partial deliveries. This includes counterparties trying to reserve a specific position for a 'special' or priority settlement. It is also noted that certain categories of end users may be more likely to reject partial deliveries, including hedge funds and sovereign wealth funds (SWFs). This could be due to a lack of commercial incentive, technical or system limitations or simply for a lack of awareness. As noted above, these counterparties create a bottleneck as it prevents firms that trade on a matched-book basis from accepting partials. In order to address the issue, it will be crucial to involve all relevant market participants in the discussion and to convince them of the wider benefits of auto-partialling.
- **Further drivers:** The upcoming implementation of cash penalties under CSDR may encourage adoption by providing additional incentives to use auto-partialling in order to reduce fail charges. Furthermore, once the relevant technical obstacles are removed, it is expected that some firms will begin to look at the introduction of economic or pricing incentives for clients and counterparties to further encourage auto-partialling. Feedback received in response to the ERCC settlement efficiency certainly provides some grounds for optimism, as a clear majority of respondents (65%) indicated that they are planning to increase their use of auto-partialling in light of the implementation of the CSDR SDR. A cross-industry effort will be needed to support this push for auto-partialling and make sure that there is awareness across the whole market of its benefits.
- **Consistency across markets:** As noted above, there is also a question of consistency across asset classes and transaction types. In particular, given the close connection between repo and cash bond markets, it would be important to consider extending the relevant best practices on the use of auto-partialling to cash bond markets through ICMA's Secondary Market Practices Committee (SMPC).

3.3 Auto-borrowing

3.3.1 What is it and why does it matter?

The two ICSDs and some CSDs operate automatic securities borrowing or 'auto-borrowing' services, sometimes referred to as 'fails lending'. This is based on pools of securities made available for lending by CSD participants to fill, on an automated basis, complete or partial shortfalls where other CSD participants have insufficient securities to meet their delivery obligations. Most auto-borrowing is therefore intra-day. Borrowers are usually only charged for loans that are still outstanding at the end of the day. The (I)CSDs provide such facilities as 'lenders-of-last-resort'. (I)CSDs typically indemnify lenders and take liens on the securities accounts of borrowers. Lending is anonymous and may be subject to limits that can be defined by lenders, borrowers, and the (I)CSD.

It is estimated that auto-borrowing services have a significant positive impact on settlement efficiency. Euroclear Bank, for example, estimates that their auto-borrowing service used at the current level contributes as much as 4% to settlement efficiency (intraday and end-of-day).

3.3.2 Current usage

The effectiveness of the auto-borrowing service depends on the number of borrowers using the service, but it also relies on the number of potential lenders making their inventory of securities available for lending. Participation for both lenders and borrowers is voluntary.

While there is a consensus that auto-borrowing is a powerful tool to support settlement efficiency, usage remains relatively limited and highly concentrated. Clearstream, for example, reported that currently only about 15% of their clients are actively using auto-borrowing to support their settlement efficiency. This share has been relatively stable since the service was introduced, although it is hoped that it might increase with some recent extensions and modifications to the service. Euroclear reports similar numbers but adds that those using auto-borrowing account for a good part of the overall settlement activity. Euroclear also noted that there are certain client segments that will typically not use auto-borrowing, such as custodians working from an omnibus account.

Auto-borrowing is highly concentrated in both ICSDs, with the top-20 institutions accounting in each case for around 90% of the value of borrowed balances, although this partly reflects the concentration of settlement activity. In terms of assets borrowed through the programmes, there is a strong focus on sovereign bonds, where many central banks participate as lenders. In Clearstream, the share of sovereign bonds is around 80% of the total value of auto-borrows, although corporate bonds account for the majority (58%) of the number of loans. In Euroclear, the share of sovereign bonds is 60% of the value of auto-borrowing, with the remainder split roughly equally across corporate bonds (15%), credit and financial institution bonds (15%), and others, including supranational issues and equities (10%).

Auto-borrowing facilities are currently offered by both ICSDs but are not available in most T2S markets. However, both ICSDs have either already or are planning to extend their auto-borrowing service beyond the ICSD environment to also include connected T2S markets, either directly or via agents, although this will still not ensure comprehensive coverage of all T2S markets.

As part of the ERCC settlement efficiency survey respondents were asked whether they are active users of auto-borrowing programmes for fixed income. A majority (58%) indicated that they are actively using the auto-borrowing services, although the survey did not specify the extent and size of this use and reflects a relatively narrow subset of respondents of mainly larger sell-side firms.

Perhaps more interestingly, the firms who indicated that they do not use auto-borrowing and some firms that do, quoted the relatively high costs of the service as the main obstacle. This has become an issue with negative rates, which make it uneconomical to maintain pricing close to money market rates, without disincentivising lenders from participating. This may have led some firms to reduce their auto-borrowing activity and rather rely on standard borrowing programmes to source assets. However, it is also recognised that pricing presents a difficult balance between lender and borrower interests and that rates reflect the role of auto-borrowing as a last resort as well as the fact that the facility offers abundant free liquidity throughout the day as it is only charged on overnight loans.

3.3.3 Conclusions

Auto-borrowing is different from the other settlement optimisation tools in that it is designed as a mitigant and a 'last resort' offered by (I)CSDs rather than a preventative. However, this does not mean that it is less important. In fact, participants insisted that auto-borrowing should be considered a fundamental part of the settlement efficiency toolbox as this activity helps to support market liquidity, particularly in stressed markets, reducing the resulting pressures on settlement efficiency.

- **Ensure full coverage:** As a first step it would be important to ensure that auto-borrowing programmes are available in all relevant markets. The extension of the ICSD programmes to some T2S markets is seen as a positive step in that regard, although this still leaves gaps that should be closed, either by the ICSDs or other CSDs. This would be an important step towards more harmonised settlement in Europe.

- **Opt-outs:** Participation is voluntary for both lenders and borrowers and there are possibilities (and often economic incentives) to apply opt-outs. While such opt-outs are justified and necessary in some scenarios for individual ISINs, it was agreed that blanket opt-outs should be discouraged. Equally, it was agreed that where bonds are available, participants should make use of the ability to borrow to reduce fails. One suggestion would be to explore ways to automate the process at the (I)CSD to limit the use of opt-outs, eg to allow opt-outs for individual ISINs but only for a limited time before the opt-out expires automatically. For the most liquid asset classes such as government bonds, there should be no need for any opt-outs.
- **CCP support:** ERCC members welcomed that CCPs already actively encourage the use of auto-borrowing and discussed whether it was possible to make this a formal requirement in CCP rulebooks. Although, it was also recognised that CCPs are not in a position to monitor and enforce such a rule given that the auto-borrowing programmes are managed and administered by the ICSDs.
- **Provide best practice:** Auto-borrowing programmes are not yet covered in ICMA's existing best practices, including the ERCC Guide to Best Practice. A new recommendation has been drafted for inclusion in the next version of the Guide explaining the benefits and explicitly recommending the use of auto-borrowing programmes, both as a lender and as a borrower, commensurate to the level of settlement activity undertaken. In coordination with ICMA's SMPC, it will be considered whether and how this can be extended to cash bond markets.

3.4 Other opportunities

While it was agreed to focus in a first stage on the three tools covered above which all present substantial opportunities and relatively quick wins, there are other important opportunities and tools that can be helpful to further support settlement efficiency in Europe and should be mentioned.

- **Data and transparency:** CSDR will introduce extensive regulatory reporting requirements for CSDs in relation to settlement fails and will harmonise the related data points, some of which will be made publicly available. This will be beneficial in terms of transparency and an important way to keep track of progress going forward. The industry will have to complement the effort by making effective use of the available data and to develop relevant performance indicators. In this context the ECB will play an important role. The analysis prepared by T2S has already been an important contribution and will hopefully turn into a more regular exercise.

  In relation to SFTs more specifically, the implementation of extensive transaction reporting requirements introduced by the EU SFT Regulation (SFTR) which went live in July 2020 has been a milestone in terms of transparency. Perhaps more important than the direct effects on market transparency have been the indirect benefits in terms of post-trade and matching efficiency. The implementation of the challenging SFTR requirements brought to light many existing inconsistencies in the post-trade processing of repos and has forced firms to comprehensively review their internal processes and static data management. This is likely to have had significant positive effects on settlement efficiency, by reducing matching issues and encouraging automation.

  While these benefits are evident for firms, they are currently not visible at settlement level as CSDs cannot distinguish between repos, other SFTs and cash bond transactions. The reporting templates under CSDR introduce an explicit distinction between cash trades and SFTs. However, without further changes at the level of the current settlement process, it is difficult to see how this requirement in itself can produce meaningful information, as this would require counterparties to systematically identify the 'transaction type' in their settlement instructions. While the necessary field already exists in the relevant ISO messages, it is not a required matching field under CSDR and there is currently no consistent market practice for using it. In the context of the ECB's work on collateral management harmonisation, the ERCC has made some suggestions for a consistent use of the 'transaction type' identifier which we hope will lead to a broader adoption by firms, as it would also allow for broader efficiency gains for firms beyond transparency, such as an automation of income processing for SFTs.

- **FinTech and automation:** As mentioned above, the go-live of the CSDR SDR offers an important incentive for firms to review their operational processes more broadly in order to seek efficiencies and drive post-trade automation and STP. This applies to internal processes, but external technology tools also play an important role. To help create transparency in this increasingly crowded and complex area, ICMA, as part of its growing focus on FinTech and automation, has produced over the past years a number of comprehensive mapping directories to provide an overview of available technology solutions (see box).

  ICMA is also closely involved in further initiatives to help the industry on its way to a more automated and digitised operating model which radically reduces complexity and the resulting frictions and will help improve settlement efficiency. In particular, ICMA is collaborating with ISDA and ISLA on the Common Domain Model (CDM) project, with the aim to extend the existing CDM for derivatives to SFTs and cash bonds. The CDM provides a common digital representation of trade events and actions across the lifecycle of repo and bonds which is intended to promote standardisation and facilitate interoperability across firms and platforms with wider benefits for the efficiency of post-trade processing and settlement efficiency.

ICMA's FinTech directories

- ICMA Operations FinTech directory: Initially published in 2017, the Operations FinTech directory now lists over 200 technology solutions across ten different categories, including collateral management, matching, confirmation & allocation, reconciliation, static data & SSIs.
- CSDR-SD technology directory: To assist market participants prepare for CSDR implementation, ICMA has gathered technology solutions aimed at managing the requirements under CSDR Settlement Discipline. The initial focus of ICMA's CSDR-SD technology directory is toward those solutions assisting firms in the management of cash penalties, providing a consolidated overview of the functionalities of market solutions, such as calculation, aggregation, reconciliation, invoicing, reporting, and appeals or claims management processes.
- Repo Trading Technology Directory: Intended to help market participants understand execution venues available for repo trading, the directory provides an overview of key platform characteristics such as differences in trading protocols, clearing and collateral configurations. The directory also provides information on the venues' regulatory status, market identifier codes (MIC) and additional services on offer such as regulatory reporting under SFTR.

4. Next steps

Based on the discussions so far, there are a number of areas in which the ERCC hopes to make helpful contributions to further advance the discussion and help the industry take advantage of the opportunities to optimise settlement efficiency which are outlined in this paper.

- **Promote best practices:** As referenced in the paper, the ERCC Guide to Best Practice and other industry best practices already contain a number of important recommendations in relation to settlement efficiency. This includes recommendations on the three key opportunities discussed in this paper, but also important additional issues such as netting of settlement instructions, including pair-offs. Implementing these best practices across the industry would be an important and obvious first step. In order to help this process, ICMA will compile a list of the relevant best practices in relation to settlement issues. Once finalised, we will discuss active attestation to the best practice with ERCC members, and plan to offer an opportunity for firms to demonstrate their commitment to follow these recommendations. In this context we will also explore opportunities to extend relevant best practices to other markets, in particular cash bonds. As mentioned throughout the paper, there is a close nexus between repo and cash bond markets, which means that the relevant best practices often only work if applied across both markets. The ERCC initiative has already been presented to ICMA's Secondary Markets Practice Committee (SMPC). Follow-up is ongoing and may lead to adoption of additional best practices (e.g. ICMA Secondary Market Rules and Recommendations). Similarly, this is an opportunity to raise awareness of ICMA's existing rules and best practices related to buy-ins, including the GMRA mini close-out provisions, but also ICMA's buy-in rules, as a well-established settlement risk management tool which is still often overlooked in its importance.
- **Foster cross-industry discussions:** We are keen to continue and broaden the cross- industry discussions on settlement efficiency. The intention of this paper is to make a useful contribution to this debate and to inform and trigger further discussions. We will pro-actively approach other industry bodies to discuss our conclusions and extend outreach to stakeholders that have not yet been involved, in particular the buy-side. At the same time, we will also continue targeted discussions with the relevant market infrastructure providers, including trading venues, CCPs and CSDs on the different relevant points and ideas included in this paper.
- **Focus on data:** ICMA is keen to continue the good collaboration with the Eurosystem on the topic, bilaterally as well as through the AMI-SeCo and related stakeholder groups, such as the CSG. In our view, data and metrics are central to the discussion on settlement efficiency. The Eurosystem has already undertaken important analysis related to the current level of settlement efficiency. We believe that there is an opportunity to turn this analysis into a more regular exercise around relevant key data elements. ICMA is keen to continue the collaboration in order to further expand and refine existing settlement efficiency data points and metrics. These will be crucial to quantify any progress going forward, both in relation to the usage of the different tools discussed in this paper as well the evolution of settlement efficiency in Europe more generally.
- **Continue the dialogue with regulators:** ICMA is keen to continue the constructive dialogue with policymakers on settlement efficiency, in particular in the context of the ongoing CSDR review. From an advocacy perspective our main focus will continue to be on the proposals for an MBI regime, which is potentially the most problematic aspect of CSDR. However, we are also keen to engage in a broader discussion related to settlement efficiency, including the need for any regulatory support for additional measures beyond those introduced by CSDR. As a first step, it will be important to closely monitor the impact that the introduction of cash penalties in Europe will have. This will determine whether any further efforts are needed, both from a regulatory perspective and from an industry perspective, including through additional best practice.

About

International Capital Market Association (ICMA)

ICMA promotes well-functioning cross-border capital markets, which are essential to fund sustainable economic growth. It is a not-for-profit membership association with offices in Zurich, London, Paris, Brussels and Hong Kong, serving 620 member firms in 65 jurisdictions. Among its members are private and official sector issuers, banks, broker-dealers, asset managers, pension funds, insurance companies, market infrastructure providers, central banks and law firms. It provides industry-driven standards and recommendations, prioritising four core fixed income market areas: primary, secondary, repo and collateral and sustainable finance. ICMA works with regulatory and governmental authorities, helping to ensure that financial regulation supports stable and efficient capital markets.

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The ICMA ERCC is the main industry representative body for repo and collateral markets, developing consensus solutions for issues arising in a rapidly evolving marketplace and consolidating and codifying best market practice. The ERCC also plays a significant role in nurturing the development of the repo market and supporting its wider use in Europe and globally by providing educational courses and market information, such as the bi-annual survey of the European repo market which has become established over the past two decades as the authoritative indicator of market size and structure and the dominant trends.

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