



Decision guidance

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Future securities settlement – renewed position on T2S

Proposal for Executive Board decision

The Executive Board decides that:

- the direction that the Riksbank advocates for how the Riksbank will make Swedish kronor available for securities settlement going forward is to use TARGET2-Securities, T2S,
- a decision guidance shall be provided prior to a decision on whether the Riksbank shall enter into contractual negotiations with the Eurosystem on a T2S Currency Participation Agreement (CPA),
- in particular, the analysis shall take into account the application of Swedish protective security legislation,
- the Head of the Payments Department is assigned to prepare the decision guidance in cooperation with the relevant departments, where the first step would be to present a time and activity plan for the work in Q4 2021.

The matter at hand

Today, only one central securities depository (CSD), Euroclear Sweden AB, has access to central bank money in Swedish kronor for securities settlement. However, the Riksbank has judged that there is a need in the future to be able to provide central bank money to more than one CSD for securities settlement in Swedish kronor. The area of payments and securities in Sweden and Europe is undergoing structural change. Within the EU, work is under way to complete the Capital Markets Union through a new action plan and to create a real internal market for capital. There are also expectations that companies will obtain more of their funding via the capital market in the future. More cross-border securities transactions can be expected. Banks and participants in the financial markets now have a greater need than before to be able to move collateral in the form of securities between different CSDs or other depositories. This means that it will be increasingly important for small markets that the operational aspects of

securities management do not deviate from what is considered the norm in Europe. The Swedish financial system, and the infrastructure that supports its functions, are already internationalised to a large extent and the Swedish securities market has significant links to the rest of the world.

Against this background, the Swedish market has agreed that harmonisation to European standards will be implemented and work has recently begun. The work will be followed up in the Swedish National Stakeholder Group (NSG), in which the Riksbank participates actively via the Financial Stability Department. The harmonisation work is a prerequisite for the market to be able to use T2S, but will, in itself, not lead to the Riksbank being able to provide central bank money to more than one CSD.

The market for CSDs is undergoing structural change with ongoing ownership consolidation. It is reasonable to believe that competition between CSDs will increase as a result.

T2S is the Eurosystem's technical platform for securities settlement and has been in use since 2015. T2S is designed to be able to handle more currencies than the euro. T2S is used by 21 affiliated CSDs from 20 different countries for securities settlement in central bank money.¹ In order to outsource operations to T2S, EU central banks outside the euro area and national central banks (NCBs) within the EEA may enter into agreements with the Eurosystem, a Currency participation Agreement (CPA).

In 2011, the Riksbank adopted a position of principle on T2S, which, in brief, meant that the decision to participate in T2S had to be taken by market participants, provided that financial stability would not be adversely affected and that the Riksbank could accept T2S from an operational perspective. Since market participants chose to 'wait and see', the Riksbank decided, in 2012, to decline the offer to conclude agreements with the Eurosystem on T2S. However, in view of the reasons mentioned above in terms of changed conditions since 2012, there is reason for the Riksbank to take a new position on T2S.

If, in the future, the Riksbank were to choose to enter an agreement to use T2S to provide central bank money for securities settlement, Euroclear Sweden must enter an agreement with the Eurosystem on T2S in order to continue to enable settlement in central bank money.

In parallel with the Riksbank's inquiry into T2S, a prestudy has been carried out on the Riksbank's future system for the settlement of large-value payments (RTGS); Future RIX. The decision of the Executive Board regarding how the Riksbank will provide central bank money for securities settlement going forward can be made independently of decisions regarding future RTGS and vice versa.²

Considerations

The choice of technical solution to provide central bank money to more than one CSD must not limit the Riksbank's room for manoeuvre in terms of monetary policy or financial stability. It is also important to take into account the ability to provide

¹ These countries are Belgium, Denmark, Estonia, France, Greece, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Romania, Switzerland, Slovakia, Slovenia, Spain, Germany, Hungary and Austria.

² The inquiry "Future securities settlement – renewed position on T2S" can be found in the appendix.

competitively neutral RIX services. T2S is the option that the Riksbank is investigating in order to be able to provide central bank money for securities settlement to more than one central bank in a stable, secure and efficient manner. The Riksbank has looked at other options in general, but none of these is judged to be better than T2S. However, a prerequisite for T2S to be a viable alternative is that the requirements laid down in Swedish protective security legislation can be met.³

By more central banks and CSDs using the T2S platform, costs and resources for development, operation and security can be shared among more parties, providing the opportunity to achieve efficiency gains in the form of economies of scale. It is difficult for a small country on its own to achieve the same economies of scale that can be achieved in a system with a larger number of transactions. Sharing a platform with other central banks is also a further step towards fully achieving the benefits of harmonisation, such as freer movement of capital and lower barriers to cross-border payments and securities trading. The Swedish financial system is already well integrated with the rest of the world with both Swedish and foreign players and suppliers of financial infrastructure. However, the benefits that come from sharing a platform with several countries need to be weighed against a reduction in influence.

If the Riksbank were to decide in the future to enter into an agreement to use T2S, this would also have a significant impact on the way Euroclear Sweden operates and affect CSD participants. A possible future T2S project should therefore take place in close dialogue and cooperation with market participants.

A strategic decision in relation to T2S involves a number of trade-offs, not least between, on the one hand, the degree of control and influence for the Riksbank, for CSDs and for their participants and, on the other hand, the efficiency and security of the Swedish market.

T2S involves some reduction in influence

Sharing a platform with other central banks means that decision-making processes change. With T2S, influence would be exercised through the participation of the Riksbank, together with other central banks, in working groups, committees and joint decision-making bodies on matters relating to the development of T2S. The Riksbank would only be one central bank among many, which means less influence than in a bilateral contractual situation. The assessment is, however, that this may largely be counterbalanced by other central banks having similar objectives to the Riksbank for their settlement services, for example in terms of security and efficiency.

An outsourcing to T2S means that the Riksbank retains control and responsibility for the handling of Riksbank accounts in relation to its RIX participants. The Riksbank would decide on which days it is possible to make securities settlement in central bank money in Swedish kronor on T2S.

In a T2S scenario, the CSD would also retain responsibility in relation to its participants. Like the Riksbank, they would also exercise influence through working groups and advisory committees in such a scenario. Market participants would also continue to exert influence in relation to Euroclear Sweden's own User Committee. However, in the

³ Initial steps prior to a protective security analysis have been taken in the form of a criticality analysis of T2S.

Riksbank's T2S consultation, market participants raised concerns about a reduction in the influence of the CSD and its users on development issues on T2S. In view of the fact that T2S functionality is limited to securities settlement and that the Swedish market, regardless of T2S, will introduce standardised processes for the securities area (post-trade), the Riksbank's assessment is, nevertheless, that the development of functionality that may be needed on T2S will likely also be relevant for Sweden.

The choice of a technical platform for securities settlement in central bank money must not limit the Riksbank's independence in carrying out its other tasks. In addition, the T2S CPA makes it clear that NCBs shall retain the possibility of implementing their monetary policy and of taking measures to promote financial stability in their countries. The assessment is that T2S would not lead to restrictions in the Riksbank's ability to carry out its task either in relation to the implementation of monetary policy or in order to safeguard financial stability. A number of more detailed questions remain, which need to be further investigated in a prestudy.

However, the Eurosystem has final authority to decide over T2S. Although the functionality of T2S currently looks like meeting the Riksbank's needs, and the assessment is that T2S development will probably be relevant for the Riksbank, it cannot entirely be ruled out that T2S may in the future change in a direction that is not acceptable to the Riksbank. In such a situation, the Riksbank would have to terminate the agreement. A process for taking back securities settlement from T2S would be time-consuming and costly, not only for the Riksbank but also for the Swedish market and its participants.

T2S provides increased opportunities for market efficiency and security

The ongoing harmonisation work on the market will improve the efficiency of cross-border securities settlement in Swedish securities, which is positive. This applies whether T2S is used for securities settlement in the future or not.

From the point of view of efficiency and harmonisation, there are several arguments in favour of T2S in the long term, but at the same time, there is uncertainty among market participants as to what the effects would be in the medium term. All major changes in financial infrastructure are inevitably associated with major costs. Therefore, the Executive Board needs to consider possible future cost-efficiency from a long-term societal perspective. Individual participants will be affected by changes in the payment infrastructure, as this involves transition costs. However, the goal is to reach a situation that is cost-effective in the long term.

T2S would involve the Swedish market continuously using the same processes and standards for securities settlement as most other European markets. T2S can therefore be an important component that contributes to future-proof harmonisation of the Swedish securities market's post-trade processes.

The economies of scale of T2S provide the prerequisites for cost-efficiency. These cost savings can be transferred to the final stakeholders of the capital market, thereby benefiting both investors and issuers. However, the economies of scale of T2S have not yet been as high as expected, as the number of settlement transactions has not developed as forecast. However, the Riksbank considers that additional volumes from

CSDs that have announced that they intend to join T2S may change the picture. Together with the efficiency gains that the Eurosystem expects to achieve through consolidation of T2S and TARGET2/T2 to the same technical infrastructure, it may provide the conditions for lower transaction fees in the future. With regard to the market's transition costs, a large part of the change process - and associated costs - that would be required to use T2S will already arise as part of the implementation of the Swedish market's harmonisation plan, regardless of whether T2S is used or not.

T2S enables the most efficient management of liquidity in a scenario with more than one CSD that settles in Swedish kronor. T2S would also mean longer opening hours for securities settlement in Sweden, which improves the efficiency of securities settlement.

A central aspect of the efficiency perspective for Sweden is how a possible T2S use would be implemented by Euroclear Sweden. How it would proceed in adapting its system and services to T2S is of considerable importance to how cost-effective the final solution would be. The uncertainty surrounding the cost issue was also the main concern that was highlighted in the responses to the Riksbank's T2S consultation.

Regarding security, not least cybersecurity, the assessment is that larger and better-resourced central banks generally have significantly greater opportunities than smaller central banks to meet and exceed the requirements of cybersecurity guidelines and instructions. These are important aspects for the Riksbank in its position.

Conclusions

In conclusion, the Executive Board considers the positive aspects of T2S to be significant and weigh more heavily than the negative aspects. T2S is a way of further benefiting from the efficiency gains of harmonisation. T2S would provide the opportunity to provide central bank money to more than one CSD in Swedish kronor in a way that is competitively neutral in line with the Riksbank's objective for its financial infrastructure. These positive aspects outweigh the reduction in influence resulting from platform-sharing. In the Riksbank's inquiry into T2S and the T2S CPA, areas have been identified that should be further analysed, prior to any agreement negotiations. In view of this, it is appropriate that the analysis be carried out in a prestudy, with the task of preparing a decision on whether the Riksbank shall enter into negotiations with the Eurosystem on a T2S CPA. An important component will be to make assessments in connection with Swedish protective security legislation. The protective security analysis of the T2S platform can lead to it being placed under protective security.

APPENDIX – Memorandum: Future securities settlement – renewed position on T2S

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This memorandum begins with a description of the background and the inquiry's task. It then focuses on the context of future securities settlement needs, in which the EU Capital Markets Union and the internationalisation of financial infrastructure are important aspects. Thereafter, the Eurosystem's platform for securities settlement, TARGET2-Securities (T2S), and earlier Swedish positions on T2S are described, followed by a chapter that reports changes that have taken place since these positions were taken. The following chapter addresses the topic of securities settlement with central bank money under the assumption that, in the future, it shall be possible for the Riksbank to provide central bank money to more than one central securities depository. Thereafter it is described what it may mean for the Riksbank to use T2S and, at an overall level, what it may mean for the Swedish market's participants. This is followed by a number of considerations and a chapter on the way forward, provided that a use of T2S would be the direction advocated by the Riksbank's Executive Board. The memorandum is brought to a close with a conclusion and a recommendation to the Executive Board as to whether preparatory work for connecting the Swedish krona to T2S should be initiated.

1 Background

Securities settlement means that buyers and sellers of securities exchange money and securities, respectively, with each other. The exchange of securities and money preferably takes place simultaneously, which is to say that the seller receives money at the same time as the buyer receives the purchased securities (also known as Delivery-versus-Payment, DvP). Securities settlement shall take place in central bank money where practical and available.⁴ For securities settlement to take place in the most efficient and secure way possible, it is an advantage if accounts for both securities and money are maintained on the same technical platform. For Swedish securities, securities settlement takes place through the Swedish central securities depository Euroclear Sweden AB (ES).⁵ Since 2003, the Riksbank has had a bilateral agreement with ES whereby the central securities depository (CSD) has undertaken to administer central bank accounts for securities settlement in its technical system on behalf of the Riksbank. The Riksbank also provides intraday credit in ES's system to participants in ES who are also participants in the Riksbank's payment system, RIX.

TARGET2 Securities (T2S) is the Eurosystem's technical platform for securities settlement. In order for securities settlement to take place in T2S, both central banks and CSDs, for the concerned currency, have to enter into agreements with the Eurosystem on the cash accounts and securities accounts in T2S respectively.

In 2011, the Riksbank adopted a position of principle on T2S, which, in brief, meant that the decision to participate in T2S had to be taken by market participants, provided that financial stability would not be adversely affected and that the Riksbank could accept T2S from an operational perspective. Since market participants chose to 'wait and see', the Riksbank decided, in 2012, to decline the offer to conclude contractual arrangements with the Eurosystem for T2S. Since then, however, much has happened,

⁴ Under Article 40 of Regulation (EU) No 909/2014 on improving securities settlement in the European Union and on CSDs (abbreviated CSD Regulation or CSDR).

⁵ Settlement of securities transactions in Swedish kronor is also carried out through the Danish central securities depository VP Securities A/S, although in commercial bank money.

which gives the Riksbank reason to re-examine the question of whether it should be possible to use the Swedish krona for securities settlement in central bank money in T2S.⁶

T2S has been in operation since 2015 and is used by 20 countries. These countries are Belgium, Denmark, Estonia, France, Greece, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Romania, Switzerland, Slovakia, Slovenia, Spain, Germany, Hungary, and Austria. Ergo, it is euro countries and Denmark, since Denmark's Nationalbank agreed to make the Danish krone available for securities settlement in T2S, starting in 2018. The Danish CSD has concluded agreements with the Eurosystem to conduct securities settlement on T2S.

In the Riksbank Study *What should Swedish securities settlement look like in future?* (June 2019), the Riksbank's vision for Swedish securities settlement was summarised as follows:

[...] it being important to ensure that Sweden continues to have an attractive, safe and efficient securities market that contributes to economic growth. It is therefore important that Swedish investors, issuers and other parties concerned in the securities market have the same opportunities and conditions as the rest of the EU with regard to access to cross-border capital markets.

The Riksbank Study describes in detail the background and context, as well as why there is reason for the Riksbank again to take a position on T2S. The study also analyses whether the use of T2S as a settlement platform will bring any societal benefit. The Riksbank has subsequently published another Riksbank Study.⁷ Among other things, this study describes the advantages of sharing technical platforms with other central banks and the pros and cons that such platform sharing entails.

1.1 The remit of the inquiry

This inquiry is an activity within one of the Riksbank's five strategic priorities for 2019-2022, in the area of "A payments market for the future". The task of this inquiry is to investigate whether preparatory work to connect the Swedish krona to T2S should be initiated. The starting point for the inquiry is that, going forward, it shall be possible for the Riksbank to provide central bank money to more than one CSD in a way that is stable, secure and efficient. Since the above-mentioned Riksbank Studies give a detailed picture of the background, vision, purpose and conditions for using T2S, this memorandum therefore contains only a limited description of the background and context. As part of its preparation, the inquiry obtained market views on T2S for securities settlement in central bank money through a consultation procedure.⁸

⁶ See H. Hallström and G. Söderberg (2019), "What should Swedish securities settlement look like in the future?", *Riksbank Studies* No 2, Sveriges Riksbank.

⁷ See E. Hellström, A. Börestam and H. Eklöf (2021), "Harmonisation and platform sharing in the financial market", *Riksbank Studies* No 2, Sveriges Riksbank.

⁸ The consultation is available at the Riksbank's [webpage](#).

1.2 The Riksbank's tasks and role

One of the tasks of the Riksbank is to promote a secure and efficient payment system. This means that the Riksbank shall contribute to stability in the financial system and ensure that it is possible to pay safely and efficiently.

As part of this task, the Riksbank may provide a system for the settlement of payments and otherwise participate in the settlement of payments.⁹ The use of central bank money for the settlement of payments, including in securities settlement, reduces credit and liquidity risks.¹⁰ To enhance the functioning of the payment system, the Riksbank may grant participants in the system intraday credit facilities. Credit may only be granted against adequate collateral.

The Riksbank's payment settlement system, RIX, is the central component of the Swedish financial infrastructure. RIX participants include Swedish and foreign financial institutions, clearing organisations, central counterparties, CSDs and the Swedish National Debt Office. Together with the Riksbank's system for managing collateral, the RIX system is also used for the Riksbank's operational implementation of monetary policy. The Swedish CSD ES is one of the RIX participants and the Riksbank itself is a participant in ES with several roles: issuer of securities, account operator and participant in the securities settlement. The Riksbank is also a participant in Euroclear Bank, a so-called international CSD (ICSD) domiciled in Belgium. Securities pledged to the Riksbank as collateral for credit in RIX are held in accounts with both these CSDs. All in all, there are thus several points of contact between the Riksbank's task of promoting a safe and efficient payment system and the way in which securities settlement in Swedish kronor is organised; securities settlement is very important for the functioning of the financial system and it is important for the Riksbank's performance of its tasks.

In 2003, the Riksbank and ES entered into an agreement aimed at efficiency in the securities settlement. The implication of this agreement was that the Riksbank commissioned ES to administer central bank accounts for liquidity for securities settlement in its technical system for securities settlement. The accounts may not be used for any other purpose. The accounts are regulated in the Terms and Conditions for RIX and Monetary Policy Instruments, as well as in the ES regulations. The Riksbank also provides intraday credit against collateral in ES's system.

1.2.1 The Riksbank's objectives for its financial infrastructure

The Riksbank's objectives for its financial infrastructure system assume that the settlement services provided by the Riksbank shall be stable, secure and efficient. They shall also comply with CPMI-IOSCO's Principles for Financial Market infrastructures (PFMI). A high level of operational reliability and strong continuity solutions are essential requirements for the system to be highly available and accurate and for the system to be stable. As an example, a high level of cybersecurity is therefore important in order to avoid attacks and disruptions in the system.

Another important aspect is that the system should be able to be used and should function well for a long time, as there are considerable costs associated with new and

⁹ This is specified in Sveriges Riksbank Act, Chapter 6, Article 7.

¹⁰ For more information, see Principle 9 in CPMI-IOSCO (2012), "Principles for Financial Market Infrastructures", April 2012, Bank for International Settlements and International Organization of Securities Commissions.).

further development of the system. At the same time, however, it is important that the system is based on and developed in line with international standards to the greatest extent possible. In addition, as far as is possible, the system shall facilitate the provision of services by Swedish operators outside Sweden and the provision of services by foreign operators in Sweden. Furthermore, interoperability with other systems is desirable.

The Riksbank's provision of RIX shall be made in accordance with the principle of full cost recovery, which means that the Riksbank charges fees to RIX participants to cover costs associated with providing the RIX services.

Finally, it must be possible for the Riksbank to carry out those of its tasks that are supported and enabled by the system, such as the implementation of monetary policy or measures to promote financial stability.

1.3 The EU single market and securities settlement

The basis of the European single market is the free movement of capital, goods, financial services and persons. An important element in achieving this is the harmonisation of rules and practices between Member States, for example for capital and financial services. This increases competition and promotes innovation. This benefits EU consumers, who can take advantage of a wider range of services at a lower cost. In addition, harmonisation leads to what is known as a level playing field, as all players in all European markets have the same regulatory conditions.

As early as the beginning of the 2000s, an expert group chaired by Alberto Giovannini, commissioned by the European Commission, carried out an evaluation of the barriers to effective cross-border securities settlement in Europe. The Giovannini Group identified 15 operational, legal and fiscal barriers to integrated financial markets in Europe in the area of clearing and settlement and published its analysis and proposals in two reports in 2001 and 2003, respectively.¹¹ Major efforts were then made to develop standards to remove the identified barriers, including in the post-trade area of the securities market. Some of the barriers still remain, thus counteracting a genuine single market in the EU.

One step on the way to achieving a genuine single market is the Capital Markets Union. Work on the Capital Markets Union started as early as 2015, but has not progressed at the desired pace and so the European capital markets remain fragmented. However, the European Commission adopted a new plan for the Capital Markets Union in September 2020. The completion of the Capital Markets Union will enable a genuine single capital market to be achieved, with all European capital markets integrated and capital flowing freely between European countries.¹²

¹¹ For more information see Giovannini Group (2001), "Cross-border clearing and settlement arrangements in the European Union", May 2001, the European Commission and Giovannini Group (2003), "EU clearing and settlement arrangements", April 2003, European Commission.

¹² For further information, see E. Hellström, A. Börestam and H. Eklöf (2021), "Harmonisation and platform sharing in the financial market", *Riksbank Studies* No 2, Sveriges Riksbank.

1.4 Internationalisation of the infrastructure of the securities market

The participants in the Swedish financial system use both Swedish and foreign infrastructure systems for their operations.¹³ For the communication that is sent between the participants in the Swedish financial system, the message traffic itself, the operators use network providers. One of the best known is the Belgium-domiciled actor SWIFT, but there are others.

The Swedish infrastructure companies also outsource parts of their operations, to different degrees, to companies located outside of Sweden's borders. For ES, for example, operations are located abroad in premises shared by the Euroclear group. The RIX system has also been procured from a foreign operator, but operations are not carried out abroad.

All in all, this means that the Swedish financial system, and the infrastructure that supports its functions, is already internationalised to a large extent.

1.5 Large values and significant links to the rest of the world

Securities settlement is the final step in a securities transaction and, in Sweden, securities settlement takes place in the CSD ES. ES offers this service, and other related services, to Swedish and foreign participants active in the Swedish market.

Securities transactions comprise large amounts annually in Sweden. In 2020, on average, approximately 1.15 million transactions, at a value of approximately SEK 1,231 billion per month, were settled on the stock market segment of the securities market (the AM segment). The corresponding figures for the money market segment (the PM segment) were approximately 24,500 transactions with a value of approximately SEK 7,231 billion.^{14 15}

The Swedish securities market has significant links to the rest of the world. A large proportion of Swedish securities, in terms of the market value of the shares, are owned by foreign investors.¹⁶ Between 2018 and 2020, the distribution of ownership, in terms of market value, has been relatively constant. This is illustrated in Figure 1 below.

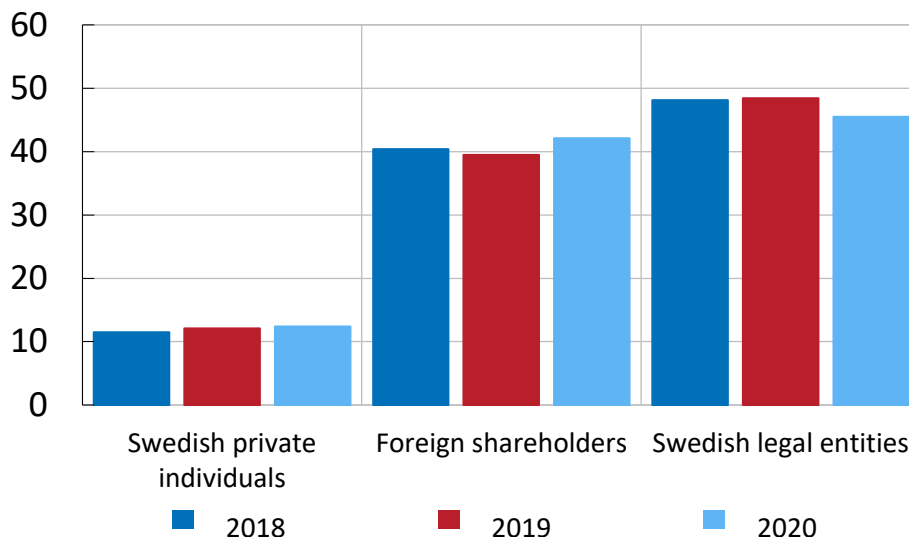
¹³ Both Swedish and foreign clearing organisations, central counterparties, central securities depositories and trade repositories.

¹⁴ Source: Euroclear Sweden

¹⁵ Most of the settlement within the AM segment concerns stock market instruments and interest-bearing instruments directed towards private individuals, such as bonds and premium bonds. Interest-bearing instruments for the institutional market, such as treasury bills, mortgage certificates, housing bonds and government bonds, are handled within the PM segment.

¹⁶ The ES shareholders' report for 2020 shows that, of the unique owners, 86.9% are Swedish private individuals, 13.1% are foreign owners and 2.0% are Swedish legal entities. In terms of value, Swedish private individuals hold only 12.4% of the total market value, while foreign owners have a prominent share of 45.5%. Foreign ownership exceeds ownership by Swedish legal entities by 42.1%. The report is available on ES's webpage.

Figure 1. Share of ownership based on market value (per cent)



Source: Euroclear Sweden.

Note. The market value of Swedish quoted shares as of 31 December each year. The statistics are available in ES's shareholders' reports from 2018, 2019, and 2020, respectively.

Swedish banks, mortgage lending companies and non-financial companies largely obtain funding on foreign capital markets, especially the European ones. Over the years 2015 to 2020, Swedish banks and mortgage companies issued covered bonds, largely in foreign currencies.¹⁷ Foreign capital markets are also important for corporate bonds (investment grade) issued by Swedish companies.

Taken together, the fact that Swedish shares, in terms of market value, are held largely by foreign owners and that Swedish participants largely obtain funding on capital markets other than the Swedish one means that it is of great importance that the Swedish capital and securities market is easily accessible to foreign market participants at the same time as Swedish participants have good access to foreign capital and securities markets. This contributes to economic growth, leads to cost-effectiveness and enables competition between the various participants in the financial system. In the end, this is positive for the Swedish society.

¹⁷ Source: Dealogic.

2 What is T2S?

T2S is one of the Eurosystem's technical platforms and is used for securities settlement in central bank money.¹⁸ T2S was created as a shared platform, primarily for settlements of euro-denominated securities. The platform is also open to other currencies, but a basic condition is that any CSD choosing to join also accepts the settlement of transactions in central bank money. T2S has been in use since 2015. T2S is used by 21 affiliated CSDs from 20 different countries for securities settlement in central bank money according to the Delivery-versus-Payment (DVP) principle. In order for a market to be able to use T2S, its CSD must outsource securities accounts and their administration to T2S and outsource the securities settlement itself to T2S. The central bank must do the same with central bank accounts by entering into a so-called Currency Participation Agreement (CPA) with the European Central Bank (ECB) and the other national central banks in the Eurosystem. For the central bank, this is the same type of arrangement that the Riksbank has had with ES since 2003.

However, T2S does not replace existing CSDs. The national CSDs remain responsible for their outsourced securities accounts and apply their own regulations and agreements as regards their customers. Similarly, central banks outsourcing their central bank accounts are still liable towards participants in their payment systems. Moreover, T2S does not offer all the services offered by a CSD. This means that a CSD that is linked to T2S must still have a technical system to offer the market their other services. This can be exemplified by the fact that payments arising from a holding of securities, such as the redemption of due bonds or dividends, are made as settlement transactions in T2S, but the calculations underlying the payments are made by the respective CSD in its system and are then sent as instructions to T2S.

T2S was created because the European securities markets are not fully integrated. T2S aims to reduce the barriers to cross-border transactions by providing a common technical infrastructure for the administration of securities accounts and central bank accounts, together with the settlement of securities transactions in central bank money. In the long run, this may also lead to increased competition between CSDs. As yet, however, only a low proportion of transactions on T2S are cross-border, which is considered to be partly because, so far, there are few so-called 'links' between CSDs. Such links are needed, for example, to manage the exchange of information between CSDs for activities that do not occur in T2S, but in the CSDs' own systems, such as information required in the calculations underlying so-called corporate actions. These links currently exist mainly between the two international CSDs, Euroclear Bank and Clearstream Banking.¹⁹

A central bank that has concluded agreements with the Eurosystem to use T2S opens central bank accounts in T2S for those participants in the central bank's payment system who wish to participate in securities settlement. Such an account in T2S is called a Dedicated Cash Account (DCA) and is only used for transactions related to the settlement of the participant's securities or for payments resulting from securities

¹⁸ The agreement that CSDs enter into with the Eurosystem is called the T2S Framework Agreement. In the introduction/recital 1 and article 5(2)(e) it is described that securities settlement on T2S shall be performed in central bank money.

¹⁹ See European Securities and Markets Authority (2020), "Report to the European Commission: Cross-border services and handling of applications under Article 23 of CSDR", November 2020.

holdings. It is also possible for central banks to provide intra-day credit through accounts on T2S, in the same way as the Riksbank does today via accounts on the ES technical platform.

CSDs that have concluded agreements with the Eurosystem to use T2S open securities accounts in T2S for their participants. Somewhat simplified, if a CSD has agreed to use T2S for settlement, it will have to carry out all securities settlement in T2S.

The Eurosystem is continuing its work of consolidation to shared platforms and, in November 2023, intends to transition to a common technical platform for the management of collateral from monetary policy counterparties to the Eurosystem's central banks; the Eurosystem Collateral Management System (ECMS). In light of this, the Governing Council of the ECB decided in April 2021 that, when the ECMS is launched, the NCBs of the euro area will only accept collateral from their monetary policy counterparties via CSDs that use T2S (the so-called T2S settlement policy).²⁰

2.1 Swedish market decision 2012 - “wait and see”

In the years 2010-2011, the Swedish market participants considered joining T2S. The Riksbank and the market participants actively followed the development of the project and contributed in the same way as the euro markets. The advantages of a Swedish T2S connection were analysed by a working group of representatives from the market.²¹ The Riksbank, the Swedish financial supervisory authority and the Ministry of Finance were observers. The working group submitted its analysis to the Swedish Banking Association, which represented the market in the T2S decision.

The decision of the market participants was to, for the time being, refrain from an implementation of T2S. The main reasons for this were the high costs associated with joining T2S and the high risks associated with a not yet complete system. A contributing factor to the high cost of joining T2S was that ES would have to invest in its obsolete IT system to adapt it to T2S. In addition, it was unclear how T2S would work for the Swedish market, for example because of the Swedish structure for securities accounts with a very large number of securities accounts being with the CSD. However, the Swedish Banking Association emphasised that the banks were in favour of T2S in the longer term and that the issue should be reviewed in the future.

2.2 The Riksbank's position

In 2011, the Riksbank adopted a position of principle on T2S, which, in brief, meant that the decision to participate in T2S had to be taken by market participants, provided that financial stability would not be adversely affected and that the Riksbank could accept T2S from an operational perspective. Since the market participants chose to ‘wait and see’, the Riksbank decided, in 2012, to decline the offer to conclude contractual arrangements with the Eurosystem for T2S. However, the changes that have taken place since then, on which the next chapter focuses, give the Riksbank reason to take a new position on T2S.

²⁰ European Central Bank (2021), “New policies for collateral mobilisation and settlement”, April 2021. [online] Available at: <https://www.ecb.europa.eu/paym/intro/news/html/ecb.mipnews210413.en.html>

²¹ Swedbank, Nordea, Handelsbanken, SEB, Erik Penser, the Swedish National Debt Office, Carnegie, Citibank, Danske Bank, the Swedish Securities Markets Association and ES.

3 What has happened since 2012?

Since 2012, much has changed in the European securities landscape and in other areas that have a bearing on the area of securities. An overview of changes in the areas of legislation, harmonisation initiatives, the T2S platform, consolidation in the infrastructure of the securities market, platform sharing for the Riksbank and cybersecurity is given below.

3.1 Changed legislation in the financial market

3.1.1 Increased need for collateral

Since 2012, the need to provide collateral for financial transactions has increased due to new regulations that have come into force, known as the European Market Infrastructure Regulation (EMIR).²² Under EMIR, there are increased collateral requirements, as identified OTC derivatives have to be cleared via a CCP.²³ EMIR also affects non-cleared OTC derivatives, i.e. OTC derivatives that are only cleared bilaterally, where all financial counterparties must exchange so-called variation margins (collateral that must be paid daily to reflect the prevailing market value of the transaction). The largest market participants must also exchange so-called initial margins (collateral requirements applicable at the time of the transaction).

All in all, EMIR means that market participants need to provide more collateral for their transactions than before. This means that they have an increased need to be able to transfer securities quickly and efficiently, both inside and outside the country. The collateral made up of securities is held in accounts with CSDs. The safety requirements imposed by EMIR are relevant in a T2S context because T2S enables market participants to make more effective use of their collateral by pooling it on a single platform that applies uniform opening hours and settlement schedules, even if the securities are held with different CSDs. This allows the securities to be moved more quickly to where they are needed to cover a position. In the responses to the Riksbank's consultation on securities settlement and T2S, several respondents expressed an increased need to be able to move collateral in a fast, efficient and easy way. However, this is not only due to regulatory requirements but also to increased international trade, increasing trade in repos and an increased need for real-time settlement.

3.1.2 Harmonised rules under the CSD Regulation

The EU regulation governing the activities of CSDs, the Central Securities Depositories Regulation (CSDR), entered into force in 2014.²⁴ The CSDR aims to improve securities settlement in Europe and introduces harmonised rules for CSDs in the EU while

²² The European Market Infrastructure Regulation (EMIR) regulates Over-the-Counter (OTC) derivatives, central counterparties (CCPs) and trade repositories in Europe, and entered into force in August 2012. The corresponding Swedish law was adopted in June 2013. In 2019 and 2020, two new regulations came into force (EMIR Refit and Emir 2.2 respectively) which partially amend and simplify EMIR.

²³ On its website, ESMA provides information on the derivatives for which the mandatory central counterparty clearing applies.

²⁴ Regulation (EC) 909/2014 of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories ([link](#)).

simultaneously opening up for competition between them on equal terms. The CSDR requires, among other things, that a CSD should settle securities in central bank money in the relevant currency, if practical and available.²⁵ Under the so-called passporting mechanism in Article 23 of the CSDR, a CSD authorised under the CSDR has the right to operate anywhere in the EU. In addition, the CSDR confers the right for issuers to use a CSD outside their home market.

The European Commission is currently carrying out a review and evaluation of the CSDR. The review strongly focuses on cross-border securities trading, among other things by evaluating the CSDR passporting mechanism and the processes for this. Its aim is to make it easier to achieve the objectives of the Regulation in a proportionate and effective way and to reduce the costs of cross-border securities transactions.

One of the elements of the review is a consultation aimed at European market participants. The consultation was completed in February 2021. In its response, the European Securities and Markets Authority (ESMA) has pointed out that European CSDs using T2S should strengthen their ability to manage risks associated with the outsourcing of settlement to T2S. In addition, ESMA has pointed out that the CSDR should be adjusted so that national authorities, together with the ECB and ESMA, can better cooperate in the supervision and oversight of T2S.²⁶

3.1.3 An action plan to complete the Capital Markets Union

As described in section 1.3 above, work on the Capital Markets Union has been ongoing since 2015, but the objectives have not yet been achieved. Consequently, in September 2020, the European Commission adopted a new action plan to complete the Capital Markets Union and create a true single market.

The action plan consists of 16 different measures that together will fully integrate EU capital markets, make funding more accessible for European companies and make it safe for individuals to save and invest. The measures relate, among other things, to updated and harmonised legislation and regulations for companies and financial actors, as well as more accessible information for both individuals and companies.

A real internal market is positive for small markets such as Sweden, for example because it makes it easier to obtain funding in markets other than the Swedish market. At the same time, it is also becoming increasingly important for Sweden to keep pace with the rest of Europe so as not to fall behind in development and become a neglected market for foreign investors and companies.

3.1.4 Swedish protective security legislation

Another example of change through legislation is that Sweden received a new Protective Security Act in 2019. The older law focused on security-classified information and how it should be handled so that no unauthorised person can access it, which is to say confidentiality issues. This remains in the new legislation, but is complemented by rules on access to security-sensitive operations, which may affect the availability and accuracy of this activity. This is, in many cases, a more relevant focus for the Riksbank. Financial

²⁵ This is specified in Article 40 of the CSDR.

²⁶ The consultation and a summary of the responses are available at the European Commission's [webpage](#).

stability is important for Sweden's security, which, in turn, depends on the proper functioning of central financial infrastructure.

Securities settlement is a central function of the functioning of the financial system and may fall under the Protective Security Act. If this is the case, a protective security analysis should be carried out to make an inventory of the operations of an authority or a private company and identify areas important for Sweden's security.

In principle, the protective security legislation means that the Riksbank must ensure that protective security measures are in place to maintain the availability of sensitive financial infrastructure for which the Riksbank is responsible. These measures shall be dimensioned according to the capacity of threat actors to affect the infrastructure. Protective security measures are divided into the following three categories.

Personnel security is intended to ensure that only security-screened and reliable personnel have sufficient authority to affect the sensitive function. In addition, there needs to be sufficient human resources to maintain the function even under abnormal conditions.

Information security includes the logical measures inherent in IT systems to hamper external attackers and provide controlled access to authorised personnel. Information that demonstrates how the system can be affected or any weaknesses that vulnerability assessments have captured need to be protected.

Physical security is the protection built around workplaces and IT systems that perform security-sensitive activities, such as alarms and certified doors, bars and walls.

Sweden has agreements with a number of other countries, including within the EU, that enable security-protected information to be exchanged and the operation of security-sensitive activities to take place in each other's countries. However, different local rules and processes may complicate putting certain protective security measures in place with a foreign participant.

3.2 Harmonisation initiatives and standardised solutions

Considerable efforts have been made to harmonise the conditions for securities and CSDs in Europe. This has been done both through legislation and through standards for processes and communications.

One important area is that the financial agents use the same format for the messages sent between them, for example when a securities transaction is to be settled. Communication between them will otherwise be inefficient and require additional processes than it would if the same messaging standard had been used. Using the same messaging standard at European or global level also facilitates cross-border transactions. ISO 20022 is a relatively new messaging standard, which is used by many different financial agents worldwide. In Sweden, however, the ISO 15022 messaging standard is still the most common, among other things in the post-trade area of the securities market.²⁷

²⁷ The Eurosystem's central banks will transition to ISO 20022 in connection with the consolidation of TARGET2 and T2S at the end of 2022. SWIFT, which offers messaging services for ISO messaging, has decided that, as of 2025, all payment-

The CSDR has been an important step in harmonising the conditions for European CSDs. The so-called passporting made available by the CSDR has increased access for European CSDs to other markets and has made it easier for them to offer their services to more participants. For this to happen effectively, processes need to look the same in all markets, otherwise local system adaptations are required. The passporting mechanism may have consequences for the Swedish market if more CSDs ask for access to central bank money in Swedish kronor for securities settlement, thus increasing competition for the Swedish CSD, which currently has a monopoly position in the Swedish securities market.

Participants in the Swedish securities market have agreed that there will be harmonisation of the post-trade area to European standards.²⁸ This means that, in addition to the changeover to ISO 20022, securities settlement in Sweden is facing major changes in the medium term. This includes both securities settlement and other processes linked to a holding of securities, such as payments of interest or the management of share issues. Harmonisation will lead to a situation where it is possible to use T2S for the settlement of Swedish securities, even if this is not a necessary consequence of harmonisation.

3.3 T2S in production

Currently, 21 CSDs from 20 European countries use the T2S platform. In practice, these are the euro countries and Denmark, which means that the two currencies currently present on T2S are the euro and the Danish krone.

3.3.1 Previous and upcoming connections to T2S

Denmark joined T2S in two stages, firstly in 2016 with a temporary solution for settlement in euro and, secondly, in 2018 with a permanent solution for settlement in Danish kroner and euro.

The accession of the Danish krone in 2018 caused a number of problems.²⁹ One of these problems was related to messaging standards, where some of the participants were unable to transition to the agreed standards for T2S settlement, ISO 15022 and ISO 20022. In addition, there were problems in the matching of transactions, which required a lot of manual intervention and thus took up both time and human resources. Problems had arisen during VP's testing but, prior to the migration to T2S, all CSD participants announced that they were prepared to start using T2S. In hindsight, however, the market has ascertained that more effort should have been put into testing and controlling that all participants were prepared. The errors that caused the first few weeks' problems were remedied by VP, but it took longer than that for the participants to sort out the situation with the unmatched transactions. The costs of the Danish T2S migration were also higher than initially estimated.

related messages in the SWIFT network will be ISO 20022 messages. As yet, no corresponding decision has been taken for securities-related communications. As other market participants in both Sweden and Europe transition to ISO 20022, it is therefore important that the Swedish market also implements the same messaging standard.

²⁸ See Coordination Forum for Swedish Post-trade Harmonisation (2021), "Harmonisation road map for the Swedish post-trade securities market", January 2021. (Available at the Riksbank's webpage)

²⁹ The Danish National Stakeholder Group has produced a report on the migration to T2S which is available at Danish VP's [webpage](#).

At present, the Danish market has a split model for its securities accounts, with securities accounts existing on two different platforms, both T2S and VP. The participants in the Swedish securities market have been clear that they do not see this as an alternative for the Swedish securities accounts, but instead all securities accounts should be on the same platform.

Finnish securities are not available on T2S yet, but they will be settled on T2S as of September 2023. This is a consequence of considerable delays in the Finnish project for joining T2S so far; the initial plan being that migration would take place in 2017.

In the future, Euroclear Bank, the Belgium-based international CSD, may join T2S. This project is still in an analysis phase and it has not yet been decided when an implementation will take place. According to an early estimate, it will take place in the second half of 2024, at earliest. At the moment, the plan is that their customers will be able to choose whether they wish to continue to settle their transactions in commercial bank money or whether they wish to settle in central bank money in euros.

Croatia is planning to transition from the Croatian kuna to the euro in early 2023 and will thereafter join T2S. The timing of the T2S accession is planned to be announced in mid-2022.³⁰

3.3.2 Changes in pricing for T2S

The cost structure of T2S is based on the principle of full cost recovery, which means that revenues from the volumes managed through T2S shall cover the development and operating costs of the platform. When the T2S platform entered into production in 2015, the price was set at EUR 0.15 per DvP instruction. Due to some delays in connections from different euro markets, T2S's income was lower than estimated in the first two years. In addition, volumes in T2S were lower than expected, with a gap of about 33% in 2017. As a result, in June 2018, the ECB decided on a price increase to EUR 0.195 per instruction from 1 January 2019, plus a temporary surcharge of EUR 0.04. The additional fee is dependent on the volume growth of T2S.³¹

In November 2022, it is planned for the Eurosystem's settlement service for large-value payments, TARGET2, to be consolidated into the same technical infrastructure as T2S and for a new settlement service for large-value payments, named T2, to be launched. One objective of this is to reduce the operating costs of the Eurosystem's platforms.

In addition, Euroclear Bank's intention to join T2S could lead to increased volumes in T2S. According to the Euroclear Bank annual report, almost 129 million securities transactions, worth EUR 576 trillion, were settled in 2020.³² The corresponding figures for the T2S platform were just under 177 million transactions, worth just under EUR 173 trillion.

This suggests that the accession of Euroclear Bank could have a positive effect on revenues for T2S, which in turn could result in lower charges for using T2S. Finnish and Croatian volumes are also planned to be added, which would also have a positive effect on T2S revenues and could therefore lead to lower fees for the collective.

³⁰ See TARGET2-Securities [Annual Report \(2020\)](#).

³¹ See European Central Bank (2018), "T2S Pricing structure realigned", June 2018.

³² Euroclear Bank's annual report is available on the Euroclear group's [webpage](#).

3.4 Consolidation and competition in the CSD segment

The securities market is undergoing restructuring in Europe. This has primarily been seen in the form of consolidation of stock exchanges and marketplaces, as well as central counterparties (CCPs). In the long term, the economies of scale that exist in the provision of securities safekeeping and settlement may lead to increased consolidation in the European CSD market. An indication of this is that, in 2019, the Euronext group acquired Oslo Børs, which owns the Norwegian CSD, and, in 2020, it acquired the Danish CSD. In April 2021, Euronext acquired the Borsa Italiana group, which includes the Italian CSD. It is one of the largest in Europe. The Belgium-based Euroclear Group has been operating for many years through national CSDs in different countries: Belgium, Finland, France, Ireland (through Euroclear UK & Ireland), the Netherlands, the United Kingdom (through Euroclear UK & Ireland) and Sweden. One possible consequence in the long term is that there will no longer be a CSD in each country, but that these services will instead be offered by a small number of players with Europe as their 'home market'.

The CSDR enables competition between CSDs, which may lead to more CSDs wanting to offer securities settlement in Swedish kronor in the future. For a couple of years, the Danish CSD, VP, has been a participant in RIX. VP has a service for the settlement of Swedish securities, and securities denominated in Swedish kronor are also issued through VP. The responses to the T2S consultation confirm the picture that competition between CSDs is expected to increase in the future, albeit at a slow pace.

3.5 The Riksbank has entered into an agreement on TIPS

The Riksbank is also involved in the ongoing internationalisation of the financial infrastructure. In April 2020, the Riksbank concluded an agreement with the Eurosystem to use its technical platform TARGET Instant Payment Settlement (TIPS) for the settlement of so-called instant payments in central bank money in Swedish kronor in the RIX-INST service. The plan is for RIX-INST to enter into use on TIPS in 2022. The TIPS Currency Participation Agreement (CPA), which the Riksbank has concluded with the Eurosystem, is an adaptation of the corresponding CPA for T2S. However, the TIPS-CPA is less extensive than the T2S CPA because the service is simpler. In the TIPS-CPA, the Riksbank has gained support for the views expressed by the Riksbank in 2011 regarding the T2S CPA.

3.6 Increased focus on cybersecurity and operational risks

One development that has been going on for many years and is expected to continue in the future concerns the importance of the area of cybersecurity. The threat outlook for the financial sector and the capacity of threat actors are constantly evolving. In recent decades, the frequency of cyber incidents, as well as the cost and damage resulting from them, have increased. The financial sector has become more digitalised and interconnected through complex dependencies, which in turn has increased vulnerability for cyber-related incidents. In addition to costs, cyber risks pose threats to critical financial functions and, in extreme cases, can pose threats to financial stability.³³

³³ European Systemic Risk Board (2020), *Systemic cyber risk*.

In turn, the increased and rapidly changing threat outlook places high demands on operators of the financial market infrastructures (FMIs) that provide these critical functions. Several requirements regarding FMIs' ability to predict, prevent and manage cyber-related risks have been formalised in various information and cyber security standards and guidelines in recent years.

The application of the requirements that apply to FMIs from the current documents often includes very concrete but resource-intensive activities or capabilities. The governance and organisation of cyber security work is a key area for the guidelines. The guidelines thus place demands on both organisation and technical solutions, as well as on staffing and the appropriate skills to deal with cyber-related events. Another key area is testing. Payment systems and other FMIs need to be able to verify that they have sufficient capabilities to identify, prevent, detect and manage cyber-related events.

Given that these guidelines and instructions have been published for a relatively short time and relatively recently, there is reason to believe that existing standards will be supplemented with additional requirements in the future, or that new guidelines will be developed. At a minimum, FMIs therefore need to be able to meet the requirements already existing in standards and guidelines, but will probably have to be able to meet a number of new requirements in the future, as threat actors' abilities develop further.

3.6.1 Continuity solutions

Availability is a key area for FMIs, given that they provide functions that are critical to businesses and/or communities. In recent years, digitalisation, globalisation and the increased complexity of financial systems have placed new and higher demands on how financial agents ensure business continuity. Continuity planning that is structured and adapted to operations needs to be in place so that critical operations can be maintained at an acceptable level. The field of business continuity has long been characterised by standards for how systematically work can be carried out.³⁴ In 2012, ISO published a standard in the field, which has set the tone ever since.³⁵

In 2012, a number of FMI continuity management requirements were also published in the so-called Principles for Financial Market Infrastructures from CPSS/IOSCO.³⁶ These principles include requirements for settlement to be enabled on the intended settlement day and for critical IT systems to be restored within 2 hours of a disruption. Explicit requirements also cover organisation, implementation of analyses and development of continuity plans so that critical operations can be maintained even in the event of disruptions. In addition, there is a requirement for FMIs to have a secondary operating site, which can take over operations as needed. The secondary operating site should have a risk profile that differs from the primary operating site, that is, the two should not be exposed to the same risks and thus be as independent as possible. Finally, the principles state that a third site and alternative solutions (such as manual procedures) can be considered by FMIs to strengthen continuity management further.

³⁴ For example, the UK standard *BS 25999-1:2006 Business Continuity Management* from 2006.

³⁵ ISO 22301:2019, Security and resilience – Business continuity management systems – Requirements.

³⁶ CPMI-IOSCO (2012), "Principles for Financial Market Infrastructures", April 2012, Bank for International Settlements and International Organization of Securities Commissions CPSS changed its name to CPMI in 2014.

The developments in the area of cybersecurity, as described in the above section, are also closely related to continuity management. In many contexts, the ability of FMIs to manage cyber-related events also entails the ability to maintain continuity in critical operations. This means that the demands that have emerged in the field of cybersecurity in recent years, for example from CPMI/IOSCO guidelines, will also, to a large extent, make demands on continuity management.

In addition to the requirements of guidelines and regulations, FMIs are also affected by requirements for continuity management included in terms and agreements, such as those with participants in the system or with operational suppliers. Such agreements often make demands of both parties, for example in terms of incident management, testing and exercises or meeting availability time requirements.

4 Securities settlement in central bank money

It is important to ensure that Sweden continues to have an attractive, safe and efficient securities market that contributes to economic growth. It is therefore important that Swedish investors, issuers and other parties concerned in the securities market have the same opportunities and conditions as the rest of the EU with regard to access to cross-border capital markets.

The use of central bank money in securities settlement reduces credit and liquidity risks. The Riksbank may provide central bank money for securities settlement in the manner that the Riksbank considers the most appropriate. The sections below discuss whether the Riksbank has to provide central bank money for securities settlement in more than one way and the criteria that should be applied when evaluating the various options for providing central bank money for securities settlement. Various options for access to central bank funds for securities settlement are then discussed.

4.1 Does the Riksbank have to provide central bank money for securities settlement in more than one way?

The services provided by a central bank are the services it is required to provide under law or the services it wishes to provide itself, provided that the law so permits. As a financial infrastructure, the Riksbank's payment system RIX complies with the CPMI-IOSCO Principles for Financial Market Infrastructures (PFMI). One of these principles concerns equal treatment of participants. The services provided by the central bank in question shall be subject to a principle of equal treatment.

According to the Administrative Procedure Act, the Riksbank shall apply the principles of impartiality and objectivity and also has a service obligation. The Riksbank shall be objective and impartial in its activities to provide central bank money. The requirements of the Administrative Procedure Act on service obligations cannot be interpreted as an obligation to provide central bank money in a way that the Riksbank does not already do. For example, if the Riksbank provides central bank money for securities settlement on T2S and a CSD that is not on T2S would like access to central bank money in Swedish kronor, the Riksbank would thus *not* be obliged to set up another service to give this CSD access to central bank money. A CSD must fulfil the Riksbank's conditions for the service in question. If the Riksbank provides central bank money via T2S, certain conditions are imposed by this, and a CSD must meet these conditions for access to central bank money in Swedish kronor, or it will be unable to access central bank money in Swedish kronor.

All in all, neither the principle of equal treatment in the PFMI nor the Administrative Procedure Act require the Riksbank to provide central bank money in Swedish kronor for securities settlement in any other way than the one deemed most appropriate by the Riksbank.

4.2 Criteria for the provision of central bank money

In the assessment of how central bank money should be provided for securities settlement, these starting points can be mentioned.

- One of the tasks of the Riksbank is to promote a secure and efficient payment system.
- The Riksbank provides central bank money in its role as a central bank and, in the exercise of its authority, it shall be neutral and non-discriminatory in the application of conditions, including with regard to CSDs' access to central bank money for securities settlement (see section 4.1).
- Securities settlement shall take place in central bank money where practical and available.
- Securities settlement should be conducted in accordance with the principle of Delivery-versus-Payment (DvP), which is to say a simultaneous exchange of securities and money between buyers and sellers.
- Securities settlement should preferably take place through the application of what is known as an integrated model.³⁷

It is also assumed that the following conditions apply:

- Services in the Riksbank's RIX payment system are available to different extent during the hours of the day. This means that the services in the system have different opening hours.
- A settlement date in RIX is required for the implementation of monetary policy and for the balances of the participants and the Riksbank to be determined at a specified time.

Based on these starting points and conditions, a number of criteria can be formulated against which different options for providing central bank money for securities settlement can be evaluated.

- The RIX service for the provision of liquidity in central bank money shall support the possibility of one or more CSDs to carry out securities settlement.
- The service should make it possible to avoid the fragmentation of liquidity for securities settlement, which is to say to enable liquidity to be utilised effectively.
- The method for the provision of central bank money shall not entail risks to the efficiency of the Riksbank's system for large-value payments (RIX-RTGS).
- The provision of central bank money may *possibly* be made using more than one method, if this can be done in a way that does not entail increased operational risk and is reasonably effective (cost-effective) for the Riksbank.
- The service shall not be specifically designed for any CSD but shall be available on equal terms for those CSDs that meet the Riksbank's criteria.
- Central bank money shall be available to any CSD that can demonstrate a need for it, provided that a CSD meets the Riksbank's requirements for a particular method of provision.

³⁷ See section 4.3 for a description of the different models for the use of central bank money in securities settlement.

- The service should allow for interoperability between CSDs. This means that liquidity can be moved in RIX-RTGS for settlement via various CSDs during the opening hours of these services in RIX-RTGS.
- The service shall not prevent changes in the categories of institutions that may become participants in RIX.
- If the Riksbank provides accounts in more than one settlement system/external platform, the systems/platforms should change date at the same time as RIX-RTGS changes date. If the systems change date at different times, there shall be no transfer of liquidity between the systems during the time the systems are using different value dates.
- Intra-day credit shall remain available only to participants in RIX-RTGS for the period of time the system is open, which is to say for the period of time that one of the services of the system is available.
- For participants entitled to intra-day credit, this shall continue to be provided free of charge.
- The solution shall enable the Riksbank, in its role as operator of the payment system RIX, to meet the requirements imposed by law, CPMI's requirements in accordance with the Principles for Financial Market Infrastructures (PFMI), and the Riksbank's own requirements. This includes requirements arising from Swedish protective security legislation or from preparedness in the event of a crisis or raised alert.

The Riksbank has high demands concerning the security and continuity of RIX-RTGS. The starting point should be that the same high requirements also apply to other settlement services, in this case for Riksbank accounts for securities settlement.

4.3 Options for access to central bank funds for securities settlement

Central bank money in Swedish kronor for securities settlement is currently only available to ES through the Riksbank's outsourcing of cash accounts. This situation does not fulfil the starting point of this inquiry, which is that, going forward, it shall be possible for the Riksbank to provide central bank money to more than one CSD in a way that is stable, secure and efficient.

If more than one CSD wants to settle in central bank money, central bank money can be made available according to two different models: either through an integrated model or through an interfaced model.

An *integrated model* means that accounts for securities and money are made available on the same technical platform. This is the most efficient model and is the one applied in Sweden today, as the Riksbank has made accounts for central bank money available on ES's technical platform for securities settlement. An integrated model is therefore the desired model for the Riksbank to continue to use. An *interfaced model* means that central bank money remains in the Riksbank's system (RIX-RTGS) and that the CSD's system asks whether there is sufficient liquidity for settlement in its participants'

accounts.³⁸ The model may be appropriate when transaction volumes are low, as otherwise there will be a large number of messages between the RIX system and the CSD system, which will increase operational risk.

The provision of central bank money may be made using more than one model, but only on the condition that it is deemed appropriate considering the criteria to be applied. This would mean a combination of integrated and interfaced model.

In the case of an integrated model, there are two options: the outsourcing of central bank accounts for securities settlement to several CSDs (1. in the matrix below) or the use of T2S (2. in the matrix below). Furthermore, two alternatives can be envisaged that combine an integrated model with an interfaced model: ES (existing outsourcing) in parallel with an interfaced solution for another CSD (3. in the matrix below) or T2S in parallel with an interfaced solution for a CSD not present in T2S (4. in the matrix below). There are thus four theoretical options for making central bank money available for securities settlement.

Options for central bank money to more than <i>one</i> CSD			
Integrated model		Integrated model and interfaced model combined	
1. Riksbank accounts outsourced to ES and additional CSD/s	2. Riksbank accounts outsourced to T2S only	3. Accounts outsourced to ES in parallel with settlement in separate LOM in RIX-RTGS for other CSD.	4. Accounts outsourced to T2S in parallel with settlement in separate LOM in RIX-RTGS for other CSD (which is not on T2S).

Source: Sveriges Riksbank

An analysis of the four options indicates that:

- Going forward, there are options for the Riksbank to provide central bank money for securities settlement to more than one (1) CSD.
- When the different options are tested against the criteria set, the T2S option is the one that best meets the criteria. The various options we have examined have the same outcome for most of the criteria: they are judged to meet the criterion approximately as well. However, for certain criteria, only T2S meets the criterion or does so in a way that is associated with lower costs or with less operational risk for the Riksbank than the other options. It is mainly in terms of liquidity management and support for intra-day credit that T2S appears to be a stronger option than the others are. The market's response to the Riksbank's T2S consultation highlighted the importance of efficient liquidity management for securities settlement.
- If the Riksbank were to recommend T2S as the future solution and another CSD were to ask for access to central bank money before T2S is a reality, option 3 could be a 'bridging solution' for a period of time. However, the most likely thing is that, if another CSD wanted to settle in Swedish kronor, that CSD would already be on the T2S platform.

³⁸ In the case of settlement in central bank money in RIX-RTGS in an *interfaced model*, it is conceivable that the CSDs could request to act as agents for their participants and thus be able to issue settlement instructions on their sub-accounts intended for the settlement of securities in RTGS (a specific LOM).

- For the criteria relating to protective security legislation requirements and arrangements for security and continuity, all options require an investigation to be carried out in every single case before an assessment can be made of how each criterion has been met. At present, the Riksbank is conducting a pre-study on the choice of future technical platform for the Riksbank's RIX-RTGS service. The solution chosen may have some significance for the various options for central bank money for securities settlement. Somewhat simplified, the impact can be summed up by the fact that the choice of platform is important for which adjustments need to be made in the interfaces between RTGS systems, collateral management systems and the system(s) used for securities settlement.

In conclusion, it can be noted that, in light of the Riksbank's view that central bank money should be provided for securities settlement in a way that contributes to a safe and efficient payment system, that this should be done in a neutral and non-discriminatory manner, and that securities settlement should take place in an integrated model and in accordance with the principle of simultaneous exchange of securities and money between buyers and sellers (DvP), T2S appears to be the most interesting option for the Riksbank to examine for future securities settlement.

5 What would T2S mean for the Riksbank?

In order to outsource operations to T2S, EU central banks outside the euro area and national central banks (NCBs) within the EEA may enter into agreements with the Eurosystem to use T2S. The central banks' agreement is called the Currency Participation Agreement (CPA) and it is a standardised agreement. CSDs that outsource activities to T2S similarly enter into agreements with the Eurosystem, a so-called Framework Agreement. If the Riksbank were to enter into a T2S CPA with the Eurosystem, the agreement with ES that regulates the current outsourcing of Riksbank accounts for securities settlement accounts would be terminated and phased out.

If the Riksbank were to use T2S to provide central bank money for securities settlement by RIX participants, this would be a service within RIX. RIX securities settlement services would include the possibility for RIX participants to have Riksbank accounts on T2S for liquidity for securities settlement, the possibility to transfer liquidity between RIX-RTGS and accounts on T2S and the possibility, for participants entitled to intra-day credit, to obtain this in T2S for securities settlement. The RIX participants would have a contractual relationship with the Riksbank, not with the Eurosystem. T2S would need to be linked with other technical systems that the Riksbank uses for RIX and for the management of collateral for credit. Information and data from T2S would also need to be transferable for accounting purposes and for statistical collection, analysis and oversight purposes.

5.1 Agreement with the Eurosystem

T2S CPA contains a number of Schedules, some of which have their own Appendices. T2S CPA regulates the parties' responsibilities and rights during both the project phase and the operational phase. The agreement regulates a number of areas. These include, for example, service opening hours, how outsourced accounts are handled, what forms exist for how credit can be provided and different options for how a central bank can obtain collateral for credit, how T2S is linked to the central bank's own RTGS and collateral management system, what the process of change request for functionality is like, how changes and testing of changes in T2S are implemented and how to ensure that associated central banks have sufficient resources and the necessary competence. As in TIPS CPA, there is scope for a so-called currency specific schedule, where aspects not covered by the standardised agreement can be agreed. Requirements and measures relating to specific national legislation can be regulated here.

The regulatory package for central banks and CSDs also includes what is known as the T2S Scope Defining Set of Documents. This is a comprehensive and detailed documentation of the processes and functionality of T2S that totals approximately 10,000 pages. In the T2S Manual of Operational Procedures there are descriptions on, among other things, how central bank's (and CSD's) support teams should be prepared to act.

Due to a T2S CPA, there is reason to highlight a number of policy-related areas that the Executive Board should be aware of when adopting a position on T2S. These include areas such as legal risks, governance and control, exit from a T2S agreement, calendar and opening hours for the Swedish krona in T2S, the operational implementation of monetary policy, the impact on RIX operations and how oversight can be conducted in a

T2S scenario. These areas are briefly illustrated in the sections below. Considerations are set out in Chapter 7.

5.2 Legal risks

In its basic form, the CPA is a comprehensive, standardised agreement of more than 460 pages. It is very similar to the CPA that was offered to the Riksbank in 2012.³⁹ Several operational risks – not least legal – were noted at that time and these need to be addressed if the Riksbank is to be able to conclude the agreement. Most of these risks are also found in the current CPA, not least in the distribution of responsibilities between the parties. There is reason to review the distribution of responsibilities proposed in the agreement, at least according to the principle that everyone takes responsibility for what they manage and can influence. There may be room for such negotiated changes in Schedule 13 of the standard agreement, Currency specific schedule.⁴⁰ A similar agreement was also concluded between the Riksbank and the Eurosystem in spring 2020.⁴¹ The inquiry has conducted an initial assessment of the agreement and identified examples of areas proposed for deeper analysis and assessment in a possible prestudy.

5.3 Governance and control

The structure for governance and control of T2S would mean changes for the Riksbank, but perhaps to a lesser extent than if there had been no outsourcing of central bank accounts by the Riksbank in the past. Now, the Riksbank can benefit from the experiences of outsourcing to ES and of the contract for outsourcing to TIPS.

Governance and control of T2S is regulated in Schedule 8 of the CPA. According to the agreement, the Eurosystem has the final decision-making power in all matters related to T2S except those relating to the Riksbank's own accounts. The Eurosystem has this power as the owner of T2S. Given that T2S is a multilateral platform, the influence of the individual central bank is reduced compared to a situation where the central bank owns and operates its own system. However, the T2S CPA makes it clear that NCBs have full control over what are known as Dedicated Cash Accounts (DCAs) in their respective currencies. This is important for the Riksbank as the Riksbank retains the responsibility towards its participants for the handling of Riksbank accounts even when these are outsourced to T2S. In addition, the agreement makes it clear that the NCBs should retain the possibility of implementing their monetary policy and of taking measures to promote financial stability in their countries.

Final decisions on the T2S platform are taken by the Governing Council of the ECB. In addition, there is the Governors' Forum, which consists of the governors of non-euro area central banks and members of the Governing Council. The Governors' Forum discusses issues relevant to the NCBs that could not be resolved in other, lower-level forums.⁴²

³⁹ Available under ref. no. 2011-151-KAP in the registry.

⁴⁰ See the list on page 1 of the CPA: [*Where applicable, Schedule 13: NCB-specific Requirements*].

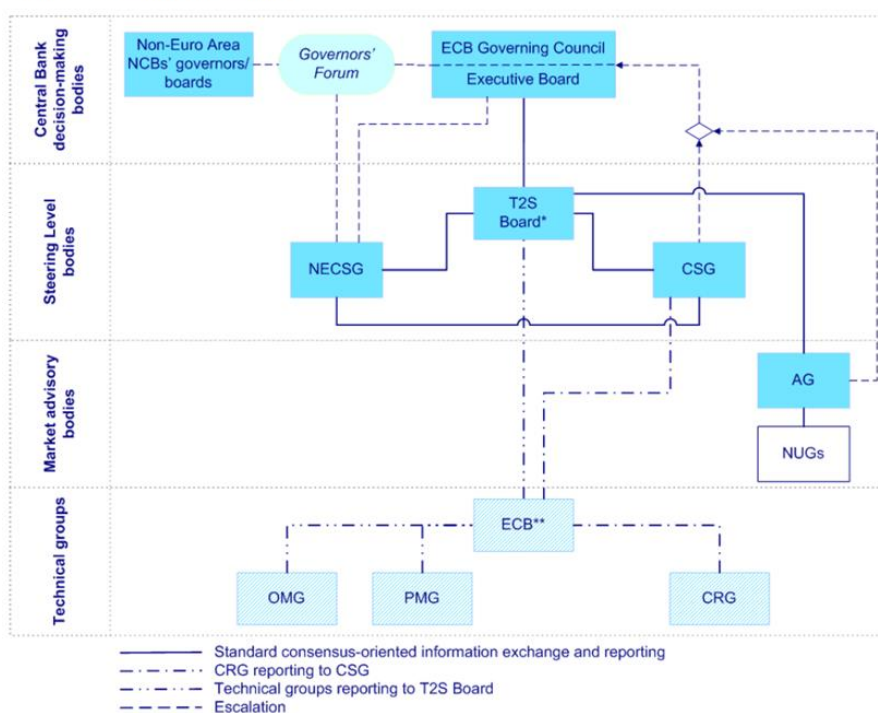
⁴¹ In TIPS CPA, the equivalent is Schedule 9.

⁴² According to information from the ECB, there has never been an escalation of any question to the Governors' Forum.

The next level, the governing level, in the T2S Governance structure consists of the T2S Board, the Non-Euro Currencies Steering Group (NECSG) and the CSG Steering Group (see section 6.2). As a non-euro market, the Riksbank would participate in the NECSG. The Market Infrastructure Board (MIB, marked as T2S Board in the diagram) is the decision-making body for all market infrastructure provided by the Eurosystem (i.e. T2S but also TIPS, TARGET2/T2 and ECMS). Although MIB's decisions are taken by delegation from the ECB's Executive Board, the MIB includes representatives of non-euro area NCBS (Sveriges Riksbank and Denmark's Nationalbank).⁴³

All in all, the Riksbank is involved in the decision-making process for T2S and has the possibility of influencing it to some extent.

Figure 1: T2S Governance bodies



Source: Eurosystem, T2S CPA Schedule 8

All NCBS, both euro and non-euro central banks, have the possibility of proposing a change in T2S, which is done by initiating a Change Request (CR). The change process is then designed so that the proposed change goes through the various forums and groups of the T2S structure. If a central bank in the NECSG sees the change as risky for its own currency or financial stability, or considers that it would impair equal conditions for competition, this should be raised within the NECSG and included in the NECSG's proposed decision. The final decision on a CR is taken by the Governing Council. If no consensus on the CR can be reached on the basis of decisions proposed by stakeholders, the issue can be discussed further in discussions led by the MIB. If the issue is still not resolved, it can be discussed in the Governors' Forum. If the issue cannot be resolved there either, the Eurosystem has the authority to decide. If discussions arise because of

⁴³ The Riksbank is represented by the Head of the Payments Department.

an affiliated central bank's view that the change is inappropriate as it threatens its currency or financial stability, the Eurosystem will be required to justify its decision.

In addition to the possibility of influence the Riksbank has as an affiliated central bank, the Riksbank is also chair of the Swedish National Stakeholder Group (NSG). The NSG was re-established in June 2021 (see section 6.2).⁴⁴ The NSG brings together the Swedish market's stakeholders and reports to AMI-SeCo.⁴⁵ This provides an opportunity for the Riksbank to facilitate and participate in the market's discussions of T2S.

5.4 Exit

Exit from T2S is subject to Schedule 11 of the T2S CPA. An exit may take place be due to convenience or for cause. In general, an exit occurs through a full de-migration from the T2S platform on a specific date, a so-called big bang approach. An exit should take place over a weekend, with the aim of avoiding weekends with extra traffic, such as at the end of a month or the end of a quarter. However, the parties may agree on a more sequential approach to the exit.

An exit is effected by the NCB formally terminating the contract with the ECB. Unless the parties (the ECB and the NCB) agree otherwise, the period from formal notice to exit shall not exceed 2 years. If the 2-year deadline cannot be met, a negotiation will be conducted to find a solution for the extended use of T2S services. A period of less than two years may be chosen, provided that all relevant CSDs have been informed of the exit processes and have had sufficient time to prepare for exit from T2S, which occurs at the same time as the exit of the settlement currency in question. If exit takes place due to convenience, the NCB is expected to pay for the costs incurred in planning, coordinating and carrying out exit activities.

If an exit were to take place, it would therefore be a time-consuming and costly process, not only for the Riksbank, but also for the Swedish market and those participants connected with T2S. Especially for CSDs, it would have a major impact. For example, ES, which would have outsourced its securities settlement to T2S, would require a new settlement system when T2S stops being used. The Riksbank would again have to outsource its cash accounts to ES, assuming that the settlement of Swedish securities would revert to the current model. This would require a new link between ES and the Riksbank's collateral management system (QCMS). This would possibly also be relevant for other CSDs. A project to end the use of T2S could take about the same time as the project to connect to T2S, about 5 years.

5.5 Calendar and opening hours

T2S is open for securities settlement on all so-called TARGET days, which are all days except New Year's Day, Good Friday, Easter Monday, 1 May, Christmas Day and Boxing

⁴⁴ The NSGs have replaced the National User Groups (NUGs) in the illustration.

⁴⁵ The Advisory Group on Market Infrastructures for Securities and Collateral, AMI-SeCo, corresponds to AG in the illustration.

Day. Despite the fact that Good Friday, Easter Monday and 1 May are not TARGET days, securities settlement can still take place on these days.⁴⁶

For settlement in currencies that are not part of the euro monetary union, the calendar of each currency is controlled by the issuing central bank. Sweden has 12 days of public holidays, in addition to the six days that the Eurosystem has as bank holidays. The Riksbank would thus control which days it is possible to transfer liquidity in Swedish kronor to T2S for securities settlement.

The opening times in T2S for securities settlement are significantly different from the opening hours that ES applies for securities settlement. In T2S, securities settlement takes place during both the night and the day. The settlement date ends at 18.00 in T2S for all currencies, which is to say at the same time as RIX currently closes. When T2S starts settlement again later the same day, at 20.00, the value date is the date of the next banking day. This means that, in RIX-RTGS, it must be possible to transfer liquidity to T2S accounts before then. T2S opens for these liquidity transfers at 19.00.

This is a major change to today's schedule in Swedish kronor, where no securities settlement or intra-day credit for securities settlement occurs during the night.⁴⁷ This means that the issuing central bank is not in a position to control the time when the day ends. The reasoning behind this concerns efforts towards harmonisation and cross-border settlement in T2S. In practice, within the framework of the overall time window, the central bank can control the timing of certain types of instructions/events for its own currency, such as the timing of repayment of intra-day credit, but it is not possible for the individual currency to have different times for the start and end of the day.

A longer settlement date for securities is fundamentally positive for financial stability, as it allows banks to manage their liquidity and funding over a longer period of time. However, with regard to the T2S schedule for opening hours, it cannot be ruled out that it may be difficult for the Riksbank to extend the end of the settlement day in T2S as needed, at least at short notice. Such needs do not occur often, but they do happen. The reason for this may be that an individual participant is having temporary technical problems, with consequences for other RIX participants, and therefore asks the Riksbank for an extension to that day's schedule. However, it may also be the case that serious financial problems with a participant demand action on the part of the Riksbank in order to safeguard financial stability. In such a case, it could be important to be able to control the time at which RIX services close on a given day, as the measures may require time for processing and decision-making (see also section 5.6.1). At first hand, it is access to RIX-RTGS and the collateral management system that is important in this context, but access to the securities settlement system could also be important.

⁴⁶ Good Friday and Easter Monday, however, only without payment (so-called Free of Payment settlement), which enables the transfer of securities as collateral on these days. On 1 May, securities settlement against cash is also available (Delivery-versus-Payment, DvP), which is currently used by Denmark as 1 May is not a public holiday in Denmark.

⁴⁷ However, it should be mentioned that, in conjunction with the start of RIX-INST in TIPS, it will be possible for RIX participants to transfer liquidity to/from RIX-INST accounts for a large part of the day and night throughout the year. The Riksbank also intends, in connection with the start of RIX-INST, to enable intra-day credit in RIX for a large part of the day and night, every day of the year.

5.6 Operational implementation of monetary policy

The implementation of monetary policy by the Riksbank should not be materially affected by the choice of settlement service for securities. The transactions in which the Riksbank uses securities are relatively simple and standardised, such as the sale of Riksbank Certificates, repos and loans against collateral, and the purchase and sale of securities. In addition, the Riksbank requires the possibility to receive collateral for credit in RIX and for monetary policy lending. These basic functions should exist in all settlement systems, but some technical choices or specific times at which things are done may hamper the implementation by the Riksbank in the exact way the Riksbank desires.

5.6.1 Liquidity management and the calculation of balances over the monetary policy night

The Riksbank will have solutions for managing monetary policy interest rates and accounts with central bank money in several settlement services even before a possible T2S accession. This is because, before this even happens, the Riksbank will already have two settlement services, RIX-RTGS for normal payments in central bank money, and RIX-INST for instant payments 24 hours a day made on separate technical platforms. RIX participants can transfer money between their accounts anyway, but credit can only be obtained in RIX-RTGS. However, this means that they can create liquidity in RIX-RTGS and then transfer the money to RIX-INST. At a specific calculation time, which can be compared with the end of the business day, the Riksbank will use the balances on both accounts to determine what the participant's net position is in order to calculate the interest to be debited or credited. This concept can easily be extended to more central bank accounts, for example those in T2S, if the Riksbank makes it possible to maintain liquidity in T2S at the calculation time.⁴⁸ Neither is the concept affected by the possibility of obtaining intra-day credit on T2S.

An aggravating factor with an additional system is that the change of business day or value date in RIX must be synchronised with an additional system. In order for the Riksbank's accounts and participants in the system to agree on the date on which transactions are to be made, all payment and settlement services must agree on the value date being used. Two different RIX services are not allowed to book the same event on two different value dates, which may make it difficult to extend the opening hours of services if others have already switched to the next value date. As T2S is a service that would be used by more parties than the Riksbank, it is not possible to ensure that the Riksbank would be able to extend opening hours in the event of technical problems in other services or if this was necessary for other reasons. Today, an extension of opening hours is a tool that can more easily be used in these situations.

⁴⁸ If the Riksbank would like it to be possible for RIX participants to allow liquidity in Swedish kronor to remain in their account (DCA) in T2S past settlement date, the Riksbank will have to submit a Change Request to the Eurosystem. The basic principle is that liquidity is returned to RTGS.

5.6.2 Other indirect effects on the operational implementation of monetary policy

A settlement system in which it is easier to settle securities may increase trading in securities that are settled on the trading day, which may lead to a strengthening of the monetary policy transmission mechanism. One example of something that could affect the transmission today is the early cut-off point in Swedish securities settlement for Delivery-versus-Payment repos. This means that there is no real possibility at present to even out balances between banks via secured transactions late in the day. A cut-off point later in the day, as T2S has, therefore provides better conditions for transmission.

5.6.3 Principles for the management of collateral for intra-day credit for securities settlement

If T2S is used, the Riksbank continues to determine which collateral is accepted for intra-day credit in securities settlement.

T2S provides different ways of obtaining collateral. If T2S is used, it is recommended that entire securities accounts continue to be pledged to the Riksbank, which is to say that the securities to be covered by the pledge should be transferred to a securities account that is pledged to the Riksbank. This arrangement is applied today and is appreciated by the RIX participants, since it provides a simple and flexible system where collateral can easily be replaced. As the pledging arrangement is applied to securities accounts provided by ES, the pledging takes place under Swedish law. The Riksbank needs to be a participant in the CSD in order to be able to requisition the pledge if the institution has not settled its credit at a certain agreed time before the end of the day.

For other uses of securities than for intra-day credit for securities settlement, T2S does not entail any difference compared to today, for example for intra-day credit in RIX.

If, in the future, the Riksbank were to choose to participate in one or more CSDs with a foreign domicile, either because participants request this or to enable a larger range of collateral for credit, other options for obtaining collateral may become relevant. Pledged assets in accounts provided by a foreign CSD are subject to the law of that country, which increases complexity. For securities that are registered with such a CSD, security transactions can then instead be carried out via repos, which means that the Riksbank acquires securities and, at the same time, contracts for resale.

5.6.4 Specific requirements for communication between T2S and the Riksbank's current system

As was mentioned earlier, certain requirements are set as to how T2S and the Riksbank's current system can communicate with each other in order to ensure that the operationalisation of monetary policy is as automated as it is today. The Riksbank plans for all automatic monetary policy transactions to be handled via the QCMS collateral management system. This means, among other things, that interest calculations take place in QCMS, and QCMS then creates transactions that are sent to other systems for settlement. It must be possible for these transactions, as well as information about limits and other matters, to be received by other systems such as T2S in order for all stages of the operational implementation of monetary policy to function in the same way as it does today. Communication also needs to work in the other direction, which is

to say that it must be possible for information about limit utilisation in T2S to be sent and received by QCMS.

5.7 RIX operations

If T2S were to be used, the Riksbank would remain responsible for supplying RIX services to RIX participants. Terms and conditions for RIX and monetary policy instruments would regulate those aspects relating to RIX participants' cash accounts and securities liquidity processes, including intra-day credit on T2S.

In 2011-2012, when the issue of T2S was last discussed, the Riksbank carried out an analysis of how T2S would affect RIX operations. At the time, it was estimated that the outsourcing of the handling of Riksbank accounts resulting from joining T2S would require major changes in RIX operations. In other respects, the impact of T2S on the Riksbank was judged to be limited. Since then, the Riksbank has entered into an agreement with the Eurosystem on the use of the TIPS platform. The Riksbank's use of TIPS means that adjustments are being implemented in RIX-RTGS and in QCMS. To a certain extent, these can be reused for T2S. TIPS also entails adjustments in working hours and scheduling for operational staff who are also likely to meet T2S requirements, at least in part. Notwithstanding this, using T2S would nevertheless involve changes to the current RIX operations and bring demands with it.

- T2S's opening hours are very different from those that ES applies today, which means increased service times in RIX. This also includes requirements regarding staffing for support, both for AFB/RIX and for operating and system suppliers for RIX in general. T2S will not mean fewer employees for the Riksbank, but will bring with it the need to increase resources. The need for changes to the Riksbank's staffing if T2S is used should be investigated in more detail in a prestudy.
- Since the use of T2S is equivalent to the application of European standards and processes for securities settlement, it is possible that foreign banks, which have previously used local agents for Swedish securities settlement, may thus see an advantage in becoming participants in RIX themselves. An increase in the number of participants in RIX may be important for the design of continuity routines for RIX.
- At a minimum, the Riksbank should be required to be able to have continued access to all the necessary information needed to carry out its task, which is to say the provision of central bank money for securities settlement, in a safe and efficient manner.

5.7.1 Transition costs and new running costs for the Riksbank

The Riksbank applies the principle of full cost recovery for RIX. A shift from only providing central bank money for securities settlement via ES to doing so via T2S would involve transition costs for RIX. A preliminary assessment is that parts of the system development now being carried out to link RIX-RTGS to the TIPS platform may also be used for interlinking with T2S, but that further system development will also be required. The transition costs and new running costs that T2S entails should be allocated according to the same principle as is otherwise applied to RIX.

5.7.2 T2S fees

The Eurosystem invoices affiliated central banks for transfers to/from T2S DCA accounts and for movements in DCAs, for queries and reports concerning DCAs and for communications transferred to and from T2S.

At present, the fixed fee per DCA is zero, but the ECB reserves the right to review this regularly. The fee for the automated provision of collateral for credit to central banks is currently also set at zero, but may be reviewed. The fees are invoiced in euros to affiliated central banks, which, in turn, invoice their participating settlement banks.⁴⁹

5.7.3 Protective security

Securities settlement is a central function for the financial system to work and may fall under protective security legislation. Under the condition that a functioning T2S platform is necessary for Sweden's securities settlement, T2S will be important for Sweden's security and will thus be subject to protective security. A protective security analysis determines if this is the case and at which level, which is to say what potential damage the security of Sweden may suffer from a lack of availability in the system.

Since T2S is not operated from the Riksbank's premises, its use would be regarded as outsourcing and, provided that the analysis determines that it is a security-protected operation, a level 1 security agreement should be signed. In such cases, the Riksbank chooses to consult with the Swedish Security Service as to whether outsourcing is appropriate.

When outsourcing takes place outside Sweden's borders, special attention needs to be paid to the security screening process. The protective security analysis shall indicate whether there are individuals who need security screening, including placement in a security class. For individuals resident in Sweden, this is done through a register check by the Swedish Security Service. In other countries, this check is carried out via the Ministry for Foreign Affairs. This can only be done in countries with which Sweden has a mutual agreement, which includes the 4CB countries.⁵⁰ However, it should be remembered that such a check takes time and that an agreement needs to have been reached with the counterpart so that they accept such a check being carried out. With robust redundancy solutions, a lower level of security clearance without placement in a security class (without register check but with background check) may be acceptable.

Protective security measures relating to information security and physical protection must also be verified. The scale of these measures is relative to the threat operator and the importance of the system for Sweden's security. It has been noted that the ECB already has extensive requirements in these areas, which largely cover the protective security measures that the Riksbank would require.

Further analysis of protective security-related issues should be carried out in a prestudy.

⁴⁹ TARGET Services pricing guide Version 1.0, March 2021, Annex 3, section "T2S cash-related pricing rules".

⁵⁰ 4CB is the abbreviation for the four central banks that are responsible for the operations of the Eurosystem's infrastructure systems: the German Bundesbank, the Spanish Banco de España, the Italian Banca d'Italia, and the French Banque de France.

5.7.4 Cybersecurity and contingency issues

In the event of a possible Swedish accession to T2S, it is essential that the system is secure and effective. The most important aspects of security around a system like T2S are availability and accuracy. Protection must be provided to prevent the system from becoming unavailable and to ensure that the information contained in it is not altered or destroyed. More specifically, in the event of the possible use of T2S, it would be necessary to place demands on the Eurosystem's management of the same areas that are relevant to security protection, which is to say physical security, personnel security and information security.

Cybersecurity is an area closely related to information security and it is an important area for requirements related to protection against intentional adverse influences on the availability or accuracy of the system. In principle, the Riksbank already has to follow the same international guidelines and instructions as the Eurosystem. A large part of the work in these matters related to T2S would be carried out by the Eurosystem (mainly through the ECB and 4CB, which is responsible for its operation), which has significantly greater resources to build the capacity required by the guidelines and regulations. Larger and better-resourced central banks can be deemed to have considerably greater opportunities to meet and exceed the requirements of these guidelines and instructions than a relatively smaller central bank such as the Riksbank.

Continuity management is a vital area for maintaining availability. Continuity management around T2S needs to ensure service is maintained regardless of incidents and/or interruptions. Infrastructure robustness should prevent disruption and, if disruption does occur, solutions are needed to make the service available again as soon as possible.

Ahead of a possible accession to T2S, it is important that the Riksbank ensures that change management in the Eurosystem is structured and well-functioning. In addition, requirements need to be made regarding appropriate incident management to ensure effective incident management once an incident has occurred.⁵¹

Availability interruptions need to be managed through redundant operating sites. The Eurosystem has established redundant operating sites. This provides a high level of security regarding risks related to infrastructure failures.⁵²

Continuity of the connection between the T2S platform and participants would be managed primarily by a network service provider. Risks related to communication disruptions between platform and participant therefore need to be prevented by the network service provider meeting high demands for robustness and continuity.

⁵¹ In 2020, TARGET2, the Eurosystem's service for the settlement of large-value payments, was hit by several incidents (not cyber-related) that led to service interruptions. In some cases, this also had consequences for T2S and the settlement of securities. An independent review of what caused the incidents, or complicated or extended the period of recovery, has been carried out. The review submitted 18 recommendations to the Eurosystem, which has also undertaken to implement measures according to the recommendations. More information is available of ECB's [webpage](#).

⁵² One aspect to consider, however, is the Eurosystem's consolidation project, which brings TARGET services, including T2S, into a common technical infrastructure. This means co-dependence between T2S and other TARGET services. Deciding to move T2S to another operating site also makes it necessary to move the RTGS system T2. Conversely, T2S will be affected if it becomes necessary to move T2. This could complicate the decision-making process for the relocation of operations and may have an impact on T2S availability, even in situations where only T2 is affected.

Another important area is liquidity transfers to and from T2S. In the event of system failure or communication disruptions, the liquidity needed for settling in the RTGS system may be tied to T2S, and vice versa. It is therefore important that appropriate contingency procedures are in place to enable liquidity to be moved or created. There are currently a number of such solutions set up by the Eurosystem, such as the possibility for central banks to act as agents for individual participants who are unable to carry out their liquidity transfers. In the event of communication disruptions related to the network service provider, the Eurosystem also has an alternative network that can be used to carry out a limited number of transactions.

Sharing a platform with the Eurosystem means that dependencies will be moved further from the Riksbank and beyond Sweden's borders. The possibility of developing or managing existing continuity solutions that are tailored to the Riksbank may therefore be affected by the possible use of T2S. The Eurosystem needs to take into account the needs of many countries, not just Sweden. This may make it difficult to adapt solutions to the requirements of the Riksbank's continuity planning. In a continued analysis, it is therefore important to investigate possibilities for solutions in relation to existing needs.

5.8 Oversight

If an accession to T2S were to take place, T2S would become a systemically important part of the Swedish financial infrastructure, as both the Riksbank and ES would then use T2S. T2S would then fall under the Riksbank's oversight of the financial infrastructure. The Riksbank's externalisation of cash accounts to T2S would have to be overseen as part of the oversight of the RIX system. The Riksbank therefore needs to be able to obtain all necessary information to continue to be able to oversee all relevant parts of the RIX system. The CPA for T2S explicitly mentions that the use of T2S should not affect the ability of national authorities to oversee the financial infrastructure.⁵³

The Riksbank would continue to monitor ES as before, although ES would use T2S for settlement. Their use of T2S would be considered outsourcing, which ES already has to some extent today (see section 6.1.1). Also linked to ES, the Riksbank must continue to have access to, and be able to request, the information necessary for the Riksbank to be able to oversee operations in an appropriate manner.

If several CSDs were to settle securities in Swedish kronor via T2S in the future, the Riksbank would have to oversee these as well, to some extent. It is most likely that this would be a CSD that would be able to offer services in Swedish kronor via the CSDR's passporting mechanism. This means that the CSD would have another European authority as 'home authority'. The most appropriate way for the Riksbank to oversee the additional CSD(s) would probably be through a MoU with the CSD's home authority. This is similar to the oversight arrangement that the Riksbank has had in the past for certain CCPs located outside Sweden but that have some clearing in Swedish kronor. If there are several additional CSDs, it is possible that more resources would be required at the Riksbank to ensure their oversight.

⁵³ This is specified in 3§ of Article 3 of T2S CPA.

6 What would T2S mean for the market participants?

Participants of the Swedish securities market have developed, and agreed upon, a plan to harmonise the securities market's post-trade processes with European standards. The work of implementing the plan is extensive and extends over many years. Once the plan has been implemented, the Swedish securities market will largely be in line with the processes and standards that apply to T2S. This means that a large part of the conversion costs associated with T2S will already have materialised as part of work on the plan.

A decision by the Riksbank indicating the direction in which the Riksbank intends to work with regard to how central bank money will be provided for securities settlement in the future is an important component of the market's analysis of how the harmonisation work should be carried out. This applies not least to the Swedish CSD, ES. If, in future, the Riksbank chooses to use T2S for central bank money for securities settlement, ES must enter an agreement with the Eurosystem on T2S in order to continue to enable settlement in central bank money. Among other things, this means that ES securities accounts will be outsourced to T2S.

The work for the Swedish market on implementing the processes used by T2S and transitioning from ES to T2S is complex. It is therefore necessary that a possible T2S implementation project for the Riksbank is carried out in close cooperation with the market and through joint project planning. The market participants have experience of shortcomings in other countries' T2S implementation projects that they are keen to avoid for Sweden. Thorough analysis, transparency and careful follow-up, as well as extensive testing, are important components of an implementation project.

Even if T2S is used, the participants of ES will continue to have a contractual relationship with ES, and the Riksbank insofar as they are RIX participants. However, both CSD participants and RIX participants will need to adapt their operations to changed opening times for securities settlement. In addition, participants must adapt their services and procedures to suit T2S requirements. Price lists and customer agreements need to be adapted to the amended services and regulations for ES and RIX.

ES and their participants, like the Riksbank, would need to be involved in the Eurosystem forum as regards exercising influence over the development of T2S. In the event of a possible T2S accession, requirements for future development would be addressed through other forums and by other methods than at present, as ES provides all its services through its own system (see more under Section 6.2). When placing requirements, the Swedish market participants would thus become part of a collective.

6.1 Many stakeholders would be affected

A large number of stakeholders would be affected by a possible future decision to settle Swedish securities using T2S. In the sections below, we outline how using T2S instead of the current solution would affect stakeholders. However, it is worth pointing out that the current solution does not meet the Riksbank's objective for it to be possible to provide central bank money to more than one CSD in future.

6.1.1 CSDs

At present, only ES settles securities in Swedish kronor in central bank money. The Danish CSD, VP, and the international CSDs Euroclear Bank and Clearstream Banking Luxembourg also settle in Swedish kronor, but only in commercial bank money.⁵⁴ If the settlement of Swedish securities were to be transferred to T2S, it would become possible for more CSDs to settle using Swedish kronor in central bank money. Since the CSDR has a passporting mechanism that allows CSDs to operate in European jurisdictions other than their home jurisdiction, there is an opportunity for CSDs to increase the number of markets on which they provide services. A common platform such as T2S provides good opportunities for settlement to take place in central bank money, even if the CSD offers services outside its home jurisdiction. This is in line with the CSDR, which says that settlement should take place in central bank money when practical and available. If the Riksbank were to outsource cash accounts to T2S, any additional CSDs wishing to offer settlement in Swedish kronor would not have to become participants in RIX to do so. It is only those institutions that are participants in a CSD and that want accounts in Swedish kronor that need to become RIX participants. Under the current model, as the Riksbank has outsourced cash accounts to the CSD, this institute needs to be a participant in RIX.

According to a report from ESMA's register of CSDs, as of 3 June 2021, 13 European CSDs have applied to use the passporting mechanism with the relevant authority of their home countries.⁵⁵ Six of these CSDs belong to the Euroclear Group. The countries, and number of countries, in which CSDs have applied to set up a service in varies, but the main point is that euro area CSDs have set up services in, or have applied to set up, in other euro area countries already using T2S. This suggests that there could be interest from more CSDs than at present to settle in Swedish kronor if Swedish kronor were available in T2S. The fact that more CSDs may want to settle in Swedish kronor is a view held by several of the respondents to the Riksbank's T2S consultation. They believe, however, that this will take some time or be of limited extent.

A prerequisite for a CSD to be able to use T2S is that it enters into a framework agreement with the Eurosystem. If securities settlement in Swedish kronor were to be transferred to T2S, adjustments by ES would be required. In a T2S scenario, ES would run some of its services in its own technical system and outsource others (securities accounts and settlement) to T2S. The actual changeover from settlement at ES to T2S is, in itself, associated with investment costs for the CSD. How ES would ultimately adapt its surrounding systems and services, together with its processes, in such a situation is something that would have a major impact on how effective a T2S solution would be for the Swedish market and how much it would cost the participants. The reason for this is that, if T2S is used for settlement of securities, there will be additional transaction costs from T2S for activities outsourced by the CSD. How this adjustment takes place is not something that the Riksbank can influence but, rather, something that the CSD must investigate in cooperation with its participants. It is important that services and models for joining T2S are adjusted to minimise the costs for actors and also enable new business opportunities. It is therefore necessary that a thorough analysis is carried out prior to a development and implementation phase to ensure that the solution chosen is

⁵⁴ However, the securities settlement carried out by Euroclear Bank and Clearstream Luxembourg is solely related to their custodian services and settlement takes place internally in their systems.

⁵⁵ The information is available in ESMA's [CSD Register](#).

effective. Changes to address deficiencies after the event are associated with additional costs for analysis and development. The implementation phase of any project to join T2S would also require extensive testing.

Outsourcing of securities accounts and settlement to T2S would place high demands on ES's ability to manage suppliers, as they are responsible for the execution of services to their participants, just as in the case of outsourcing to a private operator. ES has already outsourced operation of its system and therefore already has a structure for managing it. However, any outsourcing to T2S could require more extensive, or different, supplier management.

Three CSDs responded to the Riksbank's consultation on securities settlement and T2S. One viewpoint that was expressed was that Swedish kronor in T2S would enable several CSDs to settle Swedish securities in central bank money. In one of the responses, it is noted that there is a high degree of complexity in the decision. Another viewpoint that is put forth is that there is a lack of clarity over how costs related to possible development needs for the Swedish krona would be split, i.e. whether they would be split among all T2S participants or solely the participants settling in Swedish kronor. In addition, it is emphasised that the structure for decisions and decision-making powers may limit the development of the financial infrastructure system's services and that developments generally may be more difficult to manage when more participants use a platform or infrastructure system.

6.1.2 CSD participants and issuers

The use of T2S would affect all CSD participants. ES has about 40 participants, both Swedish and foreign. Both banks and financial infrastructure companies, such as CCPs, participate in settlement and are so-called account operators. About one third of these also participate in the role of settlement bank, which means that they are also participants in RIX. The Riksbank is also a participant in ES. The Riksbank participates in settlement via the Markets Department. The Riksbank is also an account operator and has securities accounts for the institutions that pledge securities as collateral for credit in RIX.

CSD participants need to adapt their systems and processes to the changes that would be made by ES. They also need to build interfaces to the T2S platform if they want a direct connection for settlement instructions to T2S. The changes thus entail investment and conversion costs for the participants. However, a large part of the investments and changes that would be required to use T2S is already included as part of the implementation of the Swedish market's harmonisation plan and is independent of the Swedish market's possible use of T2S. The cost argument put forward as an objection to T2S, in respect of large investment costs, is therefore not fully applicable to the reasoning concerning T2S, as these costs will largely be incurred regardless.

However, it is clear from the responses to the Riksbank's consultation that ES participants are concerned that running costs will rise if T2S is used for the settlement of Swedish securities. As has been said, whether this will be the case mostly depends on how ES adapts and converts its activities. The involvement of ES participants in potential T2S analysis work is important for ensuring the effectiveness of the solution chosen.

T2S's solution for liquidity management and intra-day credit is seen as very positive. The solutions are efficient and similar to what has been applied by ES and the Riksbank in ES's systems for many years. If several CSDs were to settle Swedish securities on T2S, market participants would only need one settlement account in T2S in order to use CSDs settling in Swedish kronor. T2S thus provides the opportunity for participants to gather liquidity in one account for each currency, in the participant's Dedicated Cash Account (DCA). It is not possible to hold liquidity in different currencies in one and the same DCA account on the T2S platform; a separate DCA is required for each currency. The efficiency gains arising from the non-fragmentation of liquidity between CSDs are thus so far most conspicuous for the euro markets and participants active in several different markets, as a couple of respondents pointed out in their responses to the consultation. For those participants who are only active in the Swedish market and who do not intend to use several CSDs that settle in Swedish kronor, even if the alternative were to exist, the efficiency of liquidity management would remain unchanged compared with today.

One of the changes that T2S would bring is a harmonisation of opening hours and operating hours between Sweden and the rest of Europe, with the result that the opening times for securities settlement would be longer. This could improve the settlement ratio for Swedish securities. However, it would require the participants to adjust their procedures and systems. Harmonisation of opening hours and operating hours is something that several respondents have brought up as important as it would lead to cost-effectiveness, minimise risks and create scalability. It would therefore have a positive impact for CSD participants. However, for the smaller participants, it may involve additional costs in terms of resource costs, as one institution has pointed out. Issuers whose securities are issued via ES would also be affected as a result of the settlement day starting at a different time than at present, which is to say on the evening of the banking day preceding settlement date. For corporate actions such as principal payments on bonds, liquidity must be available at that time.

T2S could make it easier for participants active in several markets to manage securities that they are using as collateral, as securities accounts for multiple CSDs exist on the same platform. This could lead to efficiency gains for them. The increased opening hours of T2S and the possibility of making DvP and FoP (Free-of-Payment) transactions during more hours of the day would increase the opportunities for moving collateral.

Operators with a direct connection for settlement instructions to and from T2S, so-called Directly Connected Participants (DCPs), would have standardised message handling with CSDs and central banks using T2S.⁵⁶ This would mean lower costs, both running and for new developments, even if initial conversion costs would arise. In addition, this would entail reduced operational risks, as it would not require specific adjustments to the each CSD or central bank, but instead would be a uniform way of communicating with all parties.

Of the participants who responded to the Riksbank's T2S consultation, about one third are negative to T2S, mainly because they do not consider the benefits of T2S to be sufficiently clear. Another third are neutral or tentative. For these, the uncertainty over costs, compared with the benefits, of T2S is considered to be an important factor. Just under one third are positive to T2S. For these, the main arguments are efficiency and

⁵⁶ DCPs are customers of either the CSD or the central bank and can be CCPs, for example.

economies of scale. Those that are positive to T2S already have operations on T2S, to varying degrees.

To be able to settle Swedish securities in central bank money, the participants of any additional CSDs settling in SEK would have to become members of RIX or hire an agent bank, that is, conclude an agreement with a RIX participant to use its T2S settlement account to settle securities. As the Riksbank accepts foreign financial institutions (non-domestic credit institutions, clearing organisations, central counterparties, CSDs and securities companies) as participants, there are possibilities for these to become participants directly in RIX.

6.1.3 Other stakeholders

The final stakeholders in initiatives aimed at improving the efficiency of securities market processes are issuers and investors, as the aim is to improve the conditions for an efficient capital market. In its response to the Riksbank's consultation, one participant has pointed out that access to a larger European investor and issuer base will become increasingly important over the next 5-10 years. T2S could improve access to Swedish securities for foreign investors, while Swedish investors could have improved access to foreign securities, particularly in euros. At present, one or several custodial banks (intermediaries) are often needed for a participant to be able to handle foreign securities. However, it should be mentioned that the market's harmonisation plan will greatly facilitate the management of Swedish securities for foreign investors and vice versa for Swedish investors.

One objective of T2S is to grant investors access to a more diversified portfolio of bonds and shares, while giving issuers access to a more diversified investor base.

If ES were to agree with the Eurosystem to use T2S, that arrangement would be part of the supervision of ES by the Swedish financial supervisory authority, which is why they are another stakeholder.

6.2 Influence for CSD and CSD participants

The control and influence structure of the Eurosystem is, for natural reasons, different from the structure used by ES. At present, the ES User Committee (UC) acts as a forum that brings together CSD participants and issuers. UC provides independent advice to the Board of ES on various issues that have an impact on CSD participants. These include issues relating to the criteria for participants and issuers, the CSD's range of services and the review and/or testing of the CSD's processes.

Through the ES UC, participants and issuers have a direct channel to the governing level of the CSD. This channel would remain in a T2S scenario but would be complemented by the Eurosystem's forum for influence. In the influence structure of T2S, the National Stakeholder Groups (NSGs) act as a link between the local market stakeholders and the Advisory Group on Market Infrastructures for Securities and Collateral (AMI-SeCo). The NSGs act as an advisory body on issues such as development, implementation and

operation of T2S. The Swedish NSG was re-established in June 2021, bringing together a wider range of market participants than those currently participating in ES UC.⁵⁷

AMI-SeCo connects market participants and the Eurosystem in order to facilitate an active dialogue on securities settlement. AMI-SeCo reports to MIB, which manages the day-to-day operation of T2S and brings together various T2S stakeholders.

For CSDs participating in T2S, the CSD Steering Group (CSG) gathers participating CSDs and allows them to provide advice or agree on solutions to various issues related to T2S. Here, CSDs can raise their participants' views. Under CSG, there are a number of sub-groups of a more technical nature.

A big difference in the structure of T2S from the current structure for ES participants is that the participants will become a small group in a larger gathering of participants. In addition, there would be more steps between participants and the decision-making level than today, when the participants, through UC, have more direct contact with the CSD board. However, it is important to bear in mind that the settlement processes applied in T2S are standardised, which may be assumed largely to be in line with the Swedish market's needs.

The responses to the Riksbank's T2S consultation show that the stakeholders are somewhat concerned that their influence would be reduced if settlement were to take place on T2S instead of ES. Among other things, they point out that direct contact with the entity carrying out settlement will be lost. In addition, there is a risk that new developments may take longer than at present, as the decision ladder is longer.

⁵⁷ The Swedish NSG is currently focused on the implementation of the Swedish market's harmonisation plan.

7 Considerations

The task of the inquiry is to investigate whether preparatory work to connect the Swedish krona to the T2S should begin, with the starting point that the Riksbank shall be able to provide central bank money to more than one CSD in a way that is stable, secure and efficient.

T2S in itself would not mean a shift from a financial system in which all participants and system suppliers are Swedish to a financial system with a combination of Swedish and foreign participants and system suppliers. Such a shift has already taken place gradually over many years. Instead, the shift is mostly about seeking economies of scale and also using systems and suppliers in the public sector. The Swedish market, as a small open economy, should not stand outside the larger markets, as the world is becoming increasingly globalised. A high degree of integration with the rest of the world makes it easier for the Swedish market to develop at the same rate as in the rest of the world, where new processes and standards are continuously being added. It also allows the Swedish market and its participants to benefit more from the EU's internal market and the resulting advantages.

7.1 Balance of influence and efficiency

T2S involves a number of trade-offs between, on the one hand, the degree of control and influence for the Riksbank, for CSDs and for their participants and, on the other hand, the efficiency of the Swedish market.

Influence and control for the Riksbank and for the CSD and its participants

The inquiry's initial legal assessment of the T2S CPA has identified a number of areas relating to issues linked to the distribution of responsibilities between the parties. These areas should be analysed further in the run-up to a possible contractual negotiation. These same areas were already identified in the analysis in 2011, as well as for TIPS, to some extent.

The Eurosystem has final authority to decide over T2S. With T2S, influence would be exercised through the participation of the Riksbank, together with other central banks, in working groups, committees and joint decision-making bodies on matters relating to the development of T2S. The Riksbank would only be one central bank among many, which means less influence than in a bilateral situation (as with ES). The assessment is, however, that this may largely be counterbalanced by the fact that the other central banks have similar objectives to the Riksbank for their settlement services, for example in terms of security and efficiency.

The T2S CPA makes it clear that NCBs have full control over what are known as Dedicated Cash Accounts (DCAs) in their respective currencies. This is important for the Riksbank as the Riksbank retains responsibility towards its participants for the handling of Riksbank accounts even when these are outsourced to T2S.

Although the functionality of T2S currently looks like meeting the Riksbank's needs, it cannot entirely be ruled out that T2S could change in a direction that is not acceptable to the Riksbank in the future. As the Riksbank would be unable to prevent this, the only remaining option would be to terminate the agreement. The termination of an agreement with the Eurosystem in relation to T2S would have major consequences. The

process of taking back securities settlement in Swedish kronor to one or more CSDs that can no longer carry out settlement on T2S would be a time-consuming and costly process, not only for the Riksbank but also for the Swedish market and the participants associated with T2S. This lock-in effect in terms of cost and time should be taken into account in any decision to provide Swedish kronor for the settlement of securities in T2S.

From the Riksbank's point of view, it is important that using T2S would not introduce any restriction on which system for large-value payments or which collateral management system the Riksbank uses. In its overall analysis, the inquiry has not identified any such dependencies.

In response to the T2S consultation, the market participants highlighted concerns about the reduced influence of the CSD and its users on development issues if T2S were to be used. In a T2S scenario, they too would also exert influence through working groups and advisory committees, which is perceived as a decrease in influence. In a T2S scenario, market participants would also continue to exert influence in relation to ES through ES's own User Committee. In view of the fact that T2S's functionality is limited to securities settlement and that the Swedish market, regardless of T2S, will introduce standardised processes for the securities area (post-trade), the assessment nevertheless is that the development of functionality that may be needed for T2S will also be relevant for Sweden.

T2S provides increased opportunities for market efficiency

The effectiveness of cross-border securities settlement in Swedish securities will be improved through the extensive harmonisation work that has now begun in the securities market's post-trade segment and that is expected to continue until 2028, regardless of whether T2S is subsequently used for securities settlement. Harmonisation work is a prerequisite for the Swedish market to be able to use T2S, but, in itself, it will not lead to the Riksbank being able to provide central bank money for more than one CSD in a way that is stable, secure and efficient. Through the work of harmonisation, a large part of the investment costs associated with using T2S for securities settlement will also be materialised.

From the points of view of both efficiency and harmonisation, there are arguments in favour of T2S. In several ways, T2S could provide an effective solution for securities settlement in central bank money in Swedish kronor. Among other things, it provides the conditions for cost-efficiency in the form of economies of scale, as there are a relatively large number of participants who share the costs of operations, development and security. In turn, these cost savings can be transferred to the final stakeholders, which is to say investors and issuers. So far, however, the potential economies of scale of T2S have not been materialised to an extent matching the initial goal. The number of settlement transactions did not develop as forecast. The added volumes from Euroclear Bank and further CSDs will create conditions for volume increases and thus cost reductions. Adding Swedish volumes would contribute further to the equation.

T2S's standardised processes and message formats provide efficiency for participants who are in multiple markets or who want to enter another market, as these make adjusting their systems to local securities settlement unnecessary.

T2S's solutions for managing liquidity and intra-day credit are efficient and resemble those that have been applied by ES and the Riksbank in ES's system for many years. The solutions are strongly supported by the market. In addition, T2S means that a RIX participant will have efficient liquidity management, since liquidity in Swedish kronor for securities settlement can be held in a single account, even if there are more CSDs settling in Swedish kronor in the future.

T2S would harmonise opening hours and operating hours between Sweden and the rest of Europe. T2S would also make the opening hours for securities settlement longer. A longer settlement day could contribute to a higher settlement ratio and thus be positive for the efficiency of securities settlement.

In addition, T2S enables liquidity and securities to be held together on a single platform, even for participants using more than one CSD. However, the benefits linked to holding liquidity and securities together are less pronounced for non-euro area countries as compared to euro area countries. For smaller participants, who generally have more domestic operations, the efficiency of liquidity management would remain unchanged compared with today.

However, from the point of view of efficiency, a central aspect concerns how the possible use of T2S would be implemented by ES (see section 6.1.1). Should the Riksbank choose to provide central bank money in the future by outsourcing Riksbank accounts to T2S, this would mean that the Swedish CSD would also have to enter into an agreement with the Eurosystem to use T2S for securities settlement to replace the arrangement with outsourced Riksbank accounts for liquidity and intra-day credit that has existed between the Riksbank and the ES for many years. How the CSD would proceed in adapting its system and services to T2S is of great importance to how cost-effective the final solution would be. If the CSD does not reduce its costs sufficiently when outsourcing and T2S fees are added to the CSD's costs, the cost savings for participants are likely to be small, or T2S may even be more expensive than the current solution. All in all, there is still uncertainty as to what the outcome would look like with regard to the CSD's future solution and costs.

As far as harmonisation is concerned, T2S would mean that the Swedish market would continuously use the same processes and standards for securities settlement as most other European markets. In this way, T2S can be seen as a component in the future proofing of the harmonisation of the Swedish financial post-trade infrastructure for securities.

The financial system's stability is assessed to be unaffected

In previous investigations of T2S (2011 and 2015), it has been estimated that T2S would have neither a positive nor a negative effect on the financial stability of the Swedish market. However, settlement date in T2S lasts considerably longer than it currently does in Sweden. This is positive for financial stability, since securities used as collateral can be moved over more hours of the day. For smaller participants, however, longer settlement dates may be costly if they require more resources and the benefits of a longer settlement date may not outweigh the cost increase.

The Eurosystem has extensive resources at its disposal for T2S as regards cybersecurity, contingency solutions, development and operation, which also benefits financial stability.

Due to outsourcing, however, T2S would contribute to a certain layer of complexity, as ES's participants would communicate with ES, which in turn communicates with the T2S platform. This could lead to some increase in operational risks for ES and thus its participants.

However, some major ES participants would probably choose to have direct communication with T2S. This is an example of the standardisation that could be possible for individual participants who are active in several markets, and where T2S could lead to reduced operational risk, which is positive for financial stability.

All in all, the inquiry concludes that, at present, T2S would not have a major impact on financial stability in either direction.

Cybersecurity and contingency are key areas

Contingency management is a vital area for maintaining the availability of settlement services. Contingency management around T2S needs to ensure service is maintained regardless of incidents and/or interruptions. The possibility of developing or managing existing contingency solutions that are tailored to the Riksbank may be affected by the use of T2S. The Eurosystem's need to take account of the demands of many countries may make it more difficult to adapt solutions to the requirements of the Riksbank's business contingency planning.

In the field of safety protection, the inquiry has carried out a so-called criticality analysis of T2S, which is the first step of a protective security analysis. The inquiry has also provided some background information about securities settlement and T2S to the Swedish Security Service. However, the assessments made in the Riksbank's prestudy of future RTGS and T2, which were conducted in parallel with this inquiry, are probably also applicable to T2S. Riksbank accounts in T2S would be a RIX service and the technical infrastructure of the Eurosystem will be the same for T2 and T2S after 2023. Nevertheless, a protective security analysis and suitability assessment would need to be carried out especially for T2S ahead of a decision on T2S being taken. Such an analysis would also need to consider possible contingency solutions.

Regarding cybersecurity, the assessment is that larger and better-resourced central banks generally have significantly greater opportunities than smaller central banks to meet and exceed the requirements of cybersecurity guidelines and instructions.

7.2 Competition-neutral solution possible with T2S

In the choice of solution, it is also important to take into account the ability to provide competitively neutral RIX services. The option of providing central bank money to more than one CSD via T2S provides the same conditions for CSDs that want to be able to carry out securities settlement in Swedish kronor using central bank money.

Other options are likely to result in less efficiency for CSD participants in terms of the fragmentation of liquidity and due to differences in cut-off times.

The cost for the Riksbank to maintain multiple externalisations of accounts would be higher, partly as a result of the increased operational risk having to be managed. This cost would be borne by the RIX participants. Lower efficiency and/or higher costs mean that the conditions for CSDs to offer competitive services will be different if other alternatives (than T2S) are used.

7.3 The Riksbank's ability to carry out its other tasks independently

The choice of technical platform for providing central bank money for securities settlement must not lead to restrictions on how the Riksbank can carry out its other tasks independently. RIX and the technical platform(s) used to provide RIX services are important not only for the Riksbank in the task of providing a payment system but also for the operational implementation of monetary policy and for the Riksbank's ability to take measures with a view to safeguarding financial stability, such as ELA. The T2S CPA makes it clear that the NCBs should retain the possibility of implementing their monetary policies and of taking measures to promote financial stability in their countries.

A number of detailed questions remain to be further investigated in a prestudy, but the inquiry has made the following assessments. They are in line with the assessments made earlier by the Riksbank on these issues regarding T2S.

7.3.1 Does not limit the operational implementation of monetary policy

The implementation of the monetary policy by the Riksbank should not be materially affected by the choice of settlement service for securities.

From a functional perspective, T2S provides services relevant to the implementation of monetary policy. For example, the calendar for the Swedish krona in T2S can be adjusted to Swedish banking days. Settlement services include the purchase and sale of securities against cash, transfers of securities without cash (such as collateral for credit), and the payment of interest and redemption of certificates and bonds that have matured. The settlement day lasts considerably longer than it does at present in the ES system.

There are conditions for the Riksbank to be able to sum up balances at a specific calculation time, which can be compared with the current end of the business day, even if these are kept in accounts in different technical systems.

7.3.2 Does not limit the task of safeguarding financial stability

As regards the Riksbank's commitments to safeguard financial stability, this concerns monitoring actors in the financial system and preparing for and providing liquidity support in situations where this is necessary.

The assessment of the inquiry is that regular opening hours in T2S are sufficient to support the Riksbank's commitments linked to liquidity support and that the Riksbank will also be able to fulfil its other commitments to safeguard financial stability in the event of joining T2S.

8 The way forward with regard to a decision to use T2S

The process for a national central bank wanting to use T2S is described in Schedule 4 of the T2S CPA.⁵⁸ The extensive testing needed before the central bank and the CSD join T2S is regulated for central banks in Schedule 3 of the CPA.

Use of T2S would mean that the whole market had a large project running over a long period of time. The Riksbank needs to organise and manage its part of the accession and the CSD needs to do the same. In addition, it is important that the CSD's participants are included in the process and have the opportunity to make the necessary preparations prior to migration. The Riksbank and the CSD must also coordinate the process between themselves, with regard to everything from documentation to planning of the method of implementation and execution of tests. All in all, this means that the Riksbank is not able to have sole control of the timetable, but must reach agreement with the various other stakeholders involved. Coordination and mutual understanding between the parties is essential from the start to reduce the risks in such a complex and long-term project as T2S would entail. Experiences from other markets' changeovers to T2S point to the importance of thorough analysis and planning as well as extensive tests.

As the market has already agreed to implement the harmonisation plan, and it is also necessary for a T2S connection to be possible, a natural first possible time for T2S would be around the middle of 2028.

Parallel to this investigation, the Riksbank is working on investigating which system, or technical platform, the Riksbank intends to use for the settlement of large payments (RIX-RTGS). One of the options analysed is T2, provided by the Eurosystem. Should this option be selected, it would probably be an advantage to start using T2 first and then T2S. The background to this is that interfaces have already been established between T2 and T2S. If the reverse order were to be applied, connections would first need to be established between the current RIX-RTGS and T2S, which would then be replaced by T2 and its interface to T2S. In the event that the Riksbank were first to put T2 into service, account would need to be taken of the fact that there are arrangements with ES that would need to be supported from T2 until T2S enters into service. In addition, the Riksbank's collateral management system (QCMS) is integrated with the ES system.

8.1 Possible timeline and steps leading to adoption of T2S

A conceivable timeline for the various steps leading to the use of T2S by the Riksbank is described in short below. At the same time, work may also be under way in relation to RIX-RTGS if the Riksbank chooses to use a supplier other than its current one.

1. Following a positive strategic decision on T2S in the autumn of 2021, the next step would be to launch a prestudy that would prepare for contractual negotiations with the Eurosystem. A number of questions need to be investigated and described in more detail under the framework of the prestudy. The prestudy will lead to a decision point on whether to start contractual negotiations with the Eurosystem.

⁵⁸ With regard to CSDs, the process is regulated in Schedules 2-4 in the T2S Framework Agreement.

2. Subject to a positive decision at the decision point of the prestudy, negotiations on the T2S agreement with the Eurosystem will be initiated. The Eurosystem has a formalised on-boarding process in preparation for an agreement decision. The process and the negotiation of the agreement lead to a decision point on whether to conclude the agreement. If an agreement is concluded, a decision can also be made on the start of an implementation project to provide Riksbank accounts for securities settlement in T2S.
3. If an implementation project is started, it will last for a number of years, with comprehensive preparations on the part of the Riksbank, the CSD and the market. A first possible date for T2S is about mid-2028, when the market's work on the harmonisation plan is expected to be completed.

9 Conclusion and recommendation

The starting point for the inquiry is that, going forward, it shall be possible for the Riksbank to provide central bank money for securities settlement to more than one CSD. This should be done in a way that is stable, secure and effective.

The Riksbank has the possibility of providing central bank money to more than one CSD without using T2S (see section 4.3). However, there are several reasons why T2S may be the preferred solution.

The participants in the Swedish financial system already use both Swedish and foreign financial infrastructure. The Swedish securities market has significant links to other countries. If the Swedish securities market were to use T2S, this would ensure that the Swedish market for securities settlement would continue to keep pace with most of the rest of Europe. T2S is thus a way of future-proofing the harmonisation of the Swedish financial infrastructure for securities. This is positive in several ways, including maintaining the Swedish market's accessibility and attractiveness for foreign participants, while at the same time keeping European markets accessible to Swedish participants.

Settlement in T2S is carried out through an integrated model and with simultaneous exchange of securities and money (DvP) between buyers and sellers. T2S enables the efficient management of liquidity for those market agents who are participants in RIX and participants in more than one CSD that settles in Swedish kronor. T2S enables participants who are active in several different markets to pool their securities and liquidity on a single platform. This is a cost-effective solution, as it eliminates the need for them to adapt their processes and systems to different local markets. In addition, it can reduce operational risks, as it provides a uniform structure and message administration to CSDs and central banks that use T2S.

The use of T2S by several central banks and CSDs enables economies of scale in terms of operation, cybersecurity and the further development of standardised functionality. Economies of scale are likely to become even clearer as more CSDs and markets connect to T2S. Increased volumes in T2S suggest that the running costs for using T2S will be reduced, as the pricing principle for T2S is based on full cost recovery.

The method used by T2S for the provision of intra-day credit by central banks is very similar to the method currently applied by the ES system. This is a method that both the market and the Riksbank consider to work very well, and it is therefore positive that this method is also used by T2S.

However, should the Riksbank decide to conclude a Currency Participation Agreement (CPA) with the Eurosystem in the future, this agreement would have to meet requirements of Swedish protective security legislation. The implications of this would have to be examined further in a possible prestudy.

In addition, it is important to ensure that the use of T2S would not introduce restrictions to the Riksbank's ability to carry out its task regarding the implementation of monetary policy and the task of safeguarding financial stability. The inquiry concludes that using T2S would not do this, but there are still a number of questions that need to be further investigated in a prestudy.

A transition from securities settlement in ES's system to T2S would involve major changes for the CSD. These changes are demanding, not only in terms of investment costs but also in the time it takes to implement them. As securities settlement is one of three main services provided by the CSD, the division of services into different technical platforms means a greater degree of complexity. This means that the analysis of how future CSD services are designed and how the work of changing over can be carried out must include all stakeholders. The result of these changes is crucial to the effectiveness of the final solution and the running costs it entails. It is important to do the right thing right from the outset, because otherwise there is a great risk that inefficiency will be built into the final solution. To address the inefficiencies retrospectively could entail both risks and costs for ES and its participants.

To sum up, there are remaining questions that need further investigation in a prestudy. The conclusion of the inquiry, however, is that, based on the information available at present and the analysis made under the framework of the inquiry, T2S may be the most advantageous solution for the provision of central bank money for securities settlement by the Riksbank in the future. One prerequisite is that the requirements of Swedish protective security legislation can be met.

9.1 Recommendation

The recommendation of the inquiry is:

The Executive Board decides that:

- the direction that the Riksbank advocates for how the Riksbank will make Swedish kronor available for securities settlement going forward is to use TARGET2-Securities, T2S,
- a decision guidance shall be provided prior to a decision on whether the Riksbank shall enter into contractual negotiations with the Eurosystem on a T2S Currency Participation Agreement (CPA),
- in particular, the analysis shall take into account the application of Swedish protective security legislation,
- the Head of the Payments Department is assigned to prepare the decision guidance in cooperation with the relevant departments, where the first step would be to present a time and activity plan for the work in Q4 2021.