



Riksbank Study

**The way forward for the  
clearing and settlement of  
retail payments in Swedish  
kronor**

NO 2 2024, 20 November

# Foreword

The Riksbank plays a central role in the Swedish market for digital retail payments: by providing the RIX settlement system and by ensuring that Swedish payments can be executed and that the financial system is efficient and stable.<sup>1</sup> In recent years, however, the clearing infrastructure has not kept pace with the development of new standards, legal requirements and other changes taking place in the Swedish market for retail payments. The Riksbank therefore sees a need to modernise the infrastructure for clearing and settling retail payments in a way that meets these changes and anticipates future needs. This modernisation is crucial for ensuring that the payments infrastructure in Swedish kronor remains stable and efficient in the future, and is also necessary for innovation in the Swedish payments market.

Against this background, the Riksbank invited participants in the Swedish retail payments market infrastructure to a round table in February 2024. This discussion explored existing challenges and opportunities with the participants. This Riksbank Study presents our view of the way forward for the infrastructure for the clearing and settlement of retail payments in Swedish kronor over the next five years. The way forward can be summarised as follows:

- Central government and private participants have a shared responsibility for the payments infrastructure.
- The infrastructure must comply with international standards.
- The infrastructure must be able to handle retail payments at all times.
- The infrastructure must be able to accommodate new participants.
- Retail payments, including card payments, should be settled in central bank money.
- The infrastructure must be resilient.

Participants in the Swedish retail payment market now need to ensure that the modernisation process moves forward. While modernisation itself can be complicated and time-consuming, it is necessary to ensure that Swedish retail payments remain secure, accessible and efficient. Changing market needs are also a key driver of development. A well-functioning infrastructure for clearing and settlement of retail payments is important to be able to respond rapidly to changing conditions. The Riksbank continues to consider it appropriate that participants other than the Riksbank are responsible for clearing retail payment solutions. If the market participants do not succeed in their task, it may be appropriate for the government, including the Riksbank, to take greater responsibility for steering the development of the retail payments infrastructure in Sweden.

*The Executive Board of the Riksbank*

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<sup>1</sup> The study does not cover cash management infrastructure.

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## Riksbank studies

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# Summary

Major changes are underway in the Swedish retail payment market; these will transform the conditions under which the clearing and settlement of retail payments occur in the future. Retail payments are payments of smaller amounts, and the term collectively refers to payments between private individuals, companies and authorities. In this Riksbank Study, we discuss how these changes affect existing infrastructures, and present the Riksbank's view of developments in the clearing and settlement of retail payments in Sweden over the next five years.

One significant change is the global transition to a new standard for payment messages, ISO 20022. Participants in the Swedish retail payments market need to adapt their systems and processes for payments so that they follow the new standard for payment messages and regional schemes. The future retail payments infrastructure is also expected to handle more instant payments. In Sweden, instant payments via Swish already account for a large share of all retail payments. In the future, even more payments are likely to be settled instantly. This applies to both Swedish and foreign payments. It is therefore important that the infrastructure of the future provides efficiency and security for payments, both within Sweden and to and from Sweden.

New EU regulation is opening the payments infrastructure up to more participants than those currently active in it. This means, for example, that payment and electronic money institutions will be able to apply for participation in clearing and settlement systems, which will require that the infrastructure is ready to widen its circle of participants.<sup>2</sup> A further change highlighted in this study concerns the sharply deteriorating cybersecurity situation. The risk of cyberattacks against the payment system has increased significantly in recent years, posing a new threat to the entire financial infrastructure in Sweden. Incidences of fraud and money laundering are also a growing societal problem that affects the payments infrastructure.

The Riksbank has a mandate to promote stability and efficiency in the financial system and to ensure that the public can make payments in Sweden. This mandate includes ensuring that secure and efficient systems are in place to process retail payments. It also includes taking responsibility for the smooth functioning of payments during peacetime crises and during states of heightened alert. The Riksbank thus formulates its view of the future development of the infrastructure for the clearing and settlement of retail payments. This is in the context of its mandate for payments, financial stability and civil preparedness. The Riksbank's view is presented in more detail in this Riksbank Study but is summarised in the following overarching summary.

**State and private actors have a shared responsibility for the payments infrastructure.** State and private actors have a joint responsibility for developing, managing and maintaining the Swedish payments infrastructure. They will continue to have this responsibility in the future. Responsibility for developing the future clearing infrastructure rests with market participants. If the market participants do not succeed in this

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<sup>2</sup> Payment and electronic money institutions are participants in the Swedish payments market that are licensed by Finansinspektionen to provide payment services.

task, it may be necessary for the government, including the Riksbank, to take greater responsibility for steering the development of the retail payments infrastructure in Sweden. The Riksbank continues to be responsible for the safe and efficient settlement of retail payments in central bank money.

**The infrastructure must follow international standards.** Clearing houses, banks and settlement systems need to comply with the scheme developed by the Nordic Payments Council (NPC) for retail payments in Nordic currencies. The international use of ISO 20022 opens the door to faster and more efficient processing of payments between different countries and currencies. The use of NPC schemes and ISO 20022 is important to make Swedish retail payments look and function like European payments. Standardisation leads to better conditions for innovation, competition and efficiency while executing retail payments.

**The infrastructure must be able to process payments instantly and at predetermined times.** The retail payments infrastructure of the future must be able to process payments at all times of the day. When registering payments, it must be possible for the payer to choose between different points of time intervals at which the payment is to be received by the recipient. It must be possible to settle retail payments at a specified time or instantly, even if payments need to be consolidated through clearing before being settled.

**The infrastructure must be able to accommodate new participants.** Under new EU legislation, payment and e-money institutions will also be able to access clearing and settlement systems in the future.<sup>3</sup> Infrastructure systems therefore need to be able to accommodate new entrants in a safe and efficient manner. One positive effect of the arrival of new participants is that it promotes innovation in the Swedish payment market. At the same time, new participants need to fulfil the requirements set to maintain financial stability, such as resilience in the face of cyberattacks.

**Retail payments, including card payments, must be settled in central bank money.** Card payments are settled in commercial bank money, even though they account for the vast majority of retail payments in Swedish kronor. Settlement in commercial bank money is more risky than settlement in central bank money, as a default by one party can affect multiple participants and lead to multiple defaults. This can be avoided if card payments revert to being settled in central bank money, like most other retail payments.<sup>4</sup>

**The infrastructure must be resilient.** Functioning payments are necessary for society to function. Given the current geopolitical situation, there is good reason to increase emphasis on the resilience of payment infrastructures. They need to function both during peacetime crises and in states of heightened alert. At the same time, money

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<sup>3</sup> Regulation (EU) 2024/886 as regards instant credit transfers in euro, known as the “Instant Payments Regulation”.

<sup>4</sup> The Principles for Financial Market Infrastructures (PFMIs) state that a system or company that settles payments must do so in central bank money whenever possible. Until 2018, card payments were settled in central bank money at the Riksbank.

laundering and fraud in the payment system has become an increasing problem. Systems therefore need to have strong protection against cyberattacks, money laundering and fraud, as well as the capacity to manage risks arising from outsourcing to third-party providers.

# Introduction

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This Riksbank Study focuses on the changes facing today's retail payment clearing and settlement infrastructure, which the new payments infrastructure will need to address over the next five years. The concept of retail payments covers payments between individuals, companies and public authorities using different payment instruments, such as account deposits, direct debits, cards and Swish.<sup>6</sup> Retail payments can refer to payments within a country but also to cross-border payments where the payer and payee are located abroad. In this Riksbank Study, we focus mainly on the clearing and settlement of retail payments in Sweden.

Standardisation and regulation, as well as rapid technological developments, have led to major changes in the payments market globally. International developments also point to a continued high rate of change. Two clear trends are that instant payments are increasingly replacing slower alternatives and that technologies in which financial information is stored in a decentralised manner and recorded in so-called blockchains are coming into use.<sup>7</sup> Crypto-assets and technologies that represent assets in the form of "tokens" are also emerging.<sup>8</sup> Both new technologies and increasingly rapid payments may eventually give rise to a structural transformation of the Swedish retail payment system, with new participants and roles being established in the retail payments infrastructure. The Riksbank monitors and participates in developments on the payment market. Examples of this include investigating the possibility of broadening access to central bank digital money,<sup>9</sup> making it possible for payment institutions and e-money institutions to participate in the Riksbank's settlement system RIX and adapting RIX to the international standard ISO 20022. However, today's infrastructure faces more immediate challenges, which is why this study is limited to the challenges and opportunities facing the retail payment market in Sweden today.

One change currently affecting retail payments and the clearing and settlement infrastructure is that the participants in the payments infrastructure - banks, payment institutions, clearing corporations and settlement systems - have to adapt their systems and services to a Nordic version of the retail payments standard (ISO 20022). The new standard is managed by the Nordic Payments Council (NPC) and is based on the European version of ISO 20022 for payments in euro (Single Euro Payment Area - SEPA), which is managed by the European Payments Council (EPC). Standardisation facilitates payments between Sweden and other countries in the EU, meaning that participants

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<sup>5</sup> The authors would like to thank Johanna Stenkula von Rosen, Mats Wallinder, Christina Wejshammar and Olof Sandstedt for their help during the preparation of this text.

<sup>6</sup> The Swedish retail payment market, Riksbank Study, 2013, Sveriges Riksbank.

<sup>7</sup> Known as Distributed Ledger Technologies (DLT).

<sup>8</sup> Visa, for example, argues that tokenisation will transform retail payments <https://visa-commercial-solutions.visa.com/knowledge-hub/tokenization-a-deep-dive>

<sup>9</sup> Both for individuals (retail Central Bank Currencies) and for settlement (wholesale Central Bank Digital Currencies)

in the Swedish payment market can take part in cross-border payment markets under the same conditions as other EU participants.

The Swedish retail payments infrastructure is characterised by low competition, with a small number of banks owning the clearing house that currently provides clearing infrastructure for most Swedish and international participants. However, new legislation requires that new categories of participant be able to apply to participate directly in the retail payment system on similar terms as banks do today. The existing infrastructure has long played an important role in the functioning of payments in Sweden and has driven development in a positive direction until recently. However, the development of retail payments clearing infrastructure has been slow in recent years.

The retail payments infrastructure also faces new challenges with the deteriorating security situation, demanding increased resilience. Regulation, standardisation and technological developments mean that clearing and settlement infrastructure needs to develop for the future. The Riksbank is updating its payment system, RIX, so that future settlement needs can be met. The privately owned clearing infrastructure is central to the functioning of digital payments in Sweden. At the same time, it needs to be modernised to meet changing conditions and future needs.

The Riksbank has been responsible for the safe and efficient settlement of various types of retail payment in central bank money. The Riksbank also has a statutory responsibility to ensure that the Swedish financial system is stable and efficient and that the general public is able to make payments in peacetime crises and states of heightened alert. This responsibility also includes ensuring robust and secure infrastructure systems for payments to function in Sweden.

In this study, we describe common ways of making retail payments, the current model for clearing and settling Swedish retail payments and the role of the Riksbank in this context. We then describe the changes that are currently taking place in the Swedish retail payment market and discuss what these mean for the future infrastructure for clearing and settlement of retail payments in Sweden.



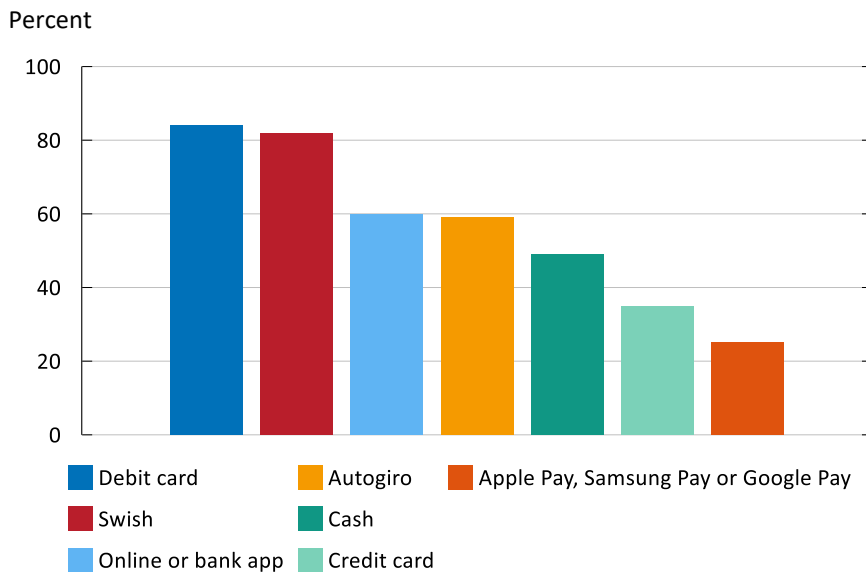
# 1 Today's Swedish retail payment clearing and settlement infrastructure

Below is a description of how clearing and settlement works in the Swedish market.

## 1.1 There are different types of payment

A distinction is usually made between payments of larger amounts from one financial institution to another, and payments of relatively small amounts such as purchases in stores, invoice payments and transfers between private persons. The latter are commonly referred to as retail payments. Instant payments, such as Swish payments, are also retail payments. Diagram 1 shows common payment methods for retail payments made in Sweden.

**Diagram 1. Common payment methods for retail payments in Sweden**



Note. Percentage who responded that they used the following payment methods in the last 30 days. Survey respondents may have indicated that they used more than one payment method during the period. Data refers to 2023.

Source: The Riksbank.

Swedes make retail payments in a variety of ways. The vast majority of people in Sweden pay by card or Swish, although ApplePay and similar services are becoming increasingly common.<sup>10</sup> New payment methods are also emerging as a result of digitali-

<sup>10</sup> See also the Riksbank's *Payment Report 2024*, which describes Swedes' payment habits and how these have changed over time.

sation and innovation in the payments market. All of these non-cash payments involve the transfer of money between accounts in some form. For money to change hands safely, an underlying infrastructure for clearing and settlement is needed.<sup>11</sup> Today, it is banks and credit market companies that offer retail payments to their customers and thus use the retail payments infrastructure.<sup>12</sup>

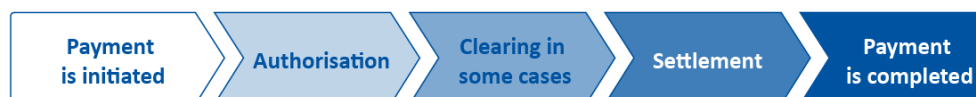
The concept of a retail payment covers payments between individuals, companies and public authorities using different types of payment instrument, such as account deposits, direct debits, cards and Swish. Retail payments can refer to payments within a country, but they can also refer to cross-border payments where the payer and payee are located in different countries. In this Riksbank study, we focus only on the clearing and settlement of retail payments in Sweden, and not on the Swedish retail payment market as a whole.

## 1.2 Clearing of retail payments

### Clearing of Swedish retail payments today

Clearing is the second step in the payment process and takes place after a payment has been authorised by the payer's bank (see Figure 1). Clearing means that a clearing house compiles and aggregates a number of incoming payments, which have recipients in the same bank. The payer's bank can also sort and aggregate payments, i.e. do the clearing before sending the payments to the clearing house.

**Figure 1. The payment process**



The clearing house acts as an intermediary between banks, and mediates payments by compiling information for the banks on the size of transfers to be made, and to which account. In practice, the clearing house combines a large number of retail payments by adding them up and sorting them according to recipient bank. Clearing may also include checking details in the payment information, such as the accuracy of bank details. These merged payments are called batch payments. The clearing house then forwards the batch payments to the central bank's settlement system for settlement, which is the final step in the payment process.<sup>13</sup> Clearing facilitates the management

<sup>11</sup> This study only describes clearing and settlement, which follows only after a payment has been initiated and authorised. See the Riksbank's publication *The Swedish Financial Market 2024* for a description of all the steps that a payment goes through.

<sup>12</sup> Banks and other institutions offering payment services are referred to as payment service providers.

<sup>13</sup> In Sweden, the settlement system is the Riksbank's RIX-RTGS system. RTGS is an abbreviation for "Real Time Gross Settlement".

of retail payments prior to settlement. Instant payments are not cleared, but are settled immediately and in instalments at the central bank.<sup>14</sup>

Historically, the Swedish clearing process has meant that a large responsibility for handling retail payments rests with the clearing house. In Sweden, the clearing house Bankgirot structures and sorts the banks' payments by offering clearing services to the banks. Swedish banks have also used Bankgirot for accounting services and reporting to the banks' customers (i.e. payers and payees) when processing retail payments.

### **A clearing house's function may vary**

In other countries, clearing houses have less extensive service offerings, beyond the task of providing clearing and submitting retail payments for settlement on behalf of their participant banks. For example, it is more common abroad for banks to sort and structure their payment orders themselves rather than having the clearing house do it. As a result, several European clearing houses have fewer services. Their services are limited to receiving participants' pre-sorted batch payments, which they then send for settlement in the national settlement system, usually at the central bank. This allows settlement to take place both at scheduled times and directly when payments are received by the clearing house. Clearinghouses can also offer payment and accounting products to banks' customers.<sup>15</sup> The way in which clearing is carried out can also vary. You can read more about this below in *FACT BOX - Different methods for clearing retail payments*.

### **Clearing is particularly important for certain types of retail payments**

Salaries and government payments, such as pensions and student grants, are payments that must be in the recipient's account at a specific time. This function cannot be fulfilled by instant payments today, so batch payments using clearing are a more appropriate way to handle such payments. Both the payer and the bank need to be able to anticipate and plan their liquidity to be able to settle such payments. This also suggests that some retail payments are better suited to be cleared and settled as batch payments. The recipient of the payments needs both information about the payments and access to the amount received. In other words, clearing allows the payer, the payee and the bank to plan their respective liquidity needs. For the payer, for example a company, it is important to know when an invoice is due. For the recipient of the invoice, it can also be crucial to know when the payment will arrive in the account. Individuals also need to be confident that their salary, pension or health insurance will be paid on a specified date. For participants in RIX, it is important to know the amounts needed to move money between accounts in the RIX system, and when these amounts need to be in place. Large volumes of instant settlement may require

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<sup>14</sup> See Section 1.3 for a description of how payments are settled in RIX-INST.

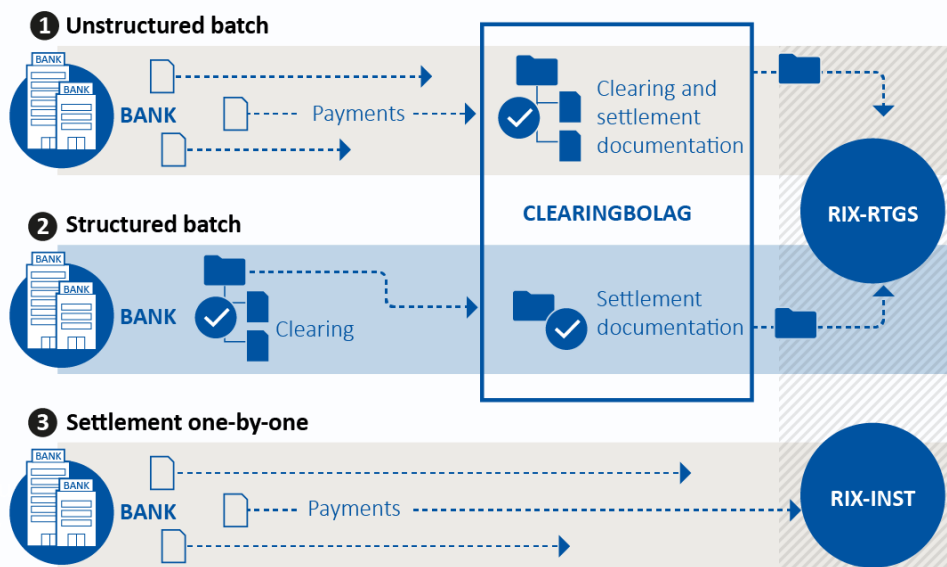
<sup>15</sup> For example, Bankgirot has previously offered payment and accounting products via the banks to corporate customers.

banks to increase their liquidity needs rapidly and, in the worst case, may lead to temporary liquidity problems for them.

## FACT BOX - Different methods for clearing retail payments

Figure 2 shows three different ways of clearing and settling retail payments. The methods most commonly used in Sweden are, in simple terms, unstructured batch and batch settlement of retail payments.

**Figure 2. Three different ways of clearing and settling retail payments**



1. *Unstructured batch* means that the banks submit several files of payments that need to be sorted according to recipient bank by the clearing house. The clearing house does the actual clearing, by merging several sorted unstructured batches and then sending a settlement document to the Riksbank for settlement. This is how Bankgirot has historically carried out, and currently carries out, clearing for the Swedish banks.
2. *Structured batch* means that banks perform the clearing themselves and then send payments sorted by recipient bank to the clearing house in a batch. The clearing house's task is then to create and send a settlement file for immediate or timed settlement to the central bank for settlement, and to forward information on the retail payments to the recipient banks. Structured batch may be a way to make clearing more efficient in the future.
3. *Settlement one-by-one* means that the retail payment is not cleared, but is instead sent directly to settlement and then on to the recipient. All payments are processed one by one. This is how Swish payments are settled.

## A broader definition of clearing activities

Developments in the payments market have resulted in a significant role for actors other than clearing houses in the processing of retail payments. This has led to a change in the definition of clearing activities. The new definition broadens the scope of clearing activities to cover the entire payment chain.<sup>16</sup> This means, for example, that the activities of Getswish AB are now defined as clearing activities. Future settlement system and other payment systems could also be included in the defined scope of clearing activities.

## 1.3 The Riksbank settles retail payments

### The Riksbank provides two services for the settlement of retail payments

For a digital payment to be finalised, it needs to be settled, which is the last step in the payment process, see Figure 1. In Sweden, it is the Riksbank that, similar to central banks in other countries, provides a centralised payment system that banks and other financial institutions use to make payments between one another. The Riksbank's RIX payment system is used to settle most Swedish retail payments.<sup>17</sup> Settlement means that money is transferred from the account in the payer's bank to the account in the payee's bank. This means that the settlement itself takes place in central bank money. Using central bank money is the safest way for banks and other actors to pay one another, as the Swedish government guarantees the money during the transaction.

The RIX system has two settlement services: RIX-RTGS and RIX-INST.<sup>18</sup> Payments between financial institutions are settled in RIX-RTGS. This applies, for example, to payments from trading in securities, foreign exchange or other types of payments, which banks make between one another. The RIX-RTGS is open on banking days between 07.00 and 18.00. Payments in RIX-RTGS are often large amounts and few in number, unlike payments in RIX-INST, which are many in number and for smaller amounts. Retail payments are settled in RIX-RTGS as total amounts per paying and recipient bank. This applies to invoice payments, salaries, subsidies and bank transfers. These batch payments are transferred to RIX-RTGS for settlement, after they have been checked by the payer's bank and cleared by a clearing house. See Figure 2 for more information on how this occurs. Settlement in RIX-RTGS takes place through transfers between participants banks' accounts, which means that the payment is finalised and the payments can be sent to the recipient banks and recipients. This method, applied in Sweden by Bankgirot, is based on bilateral gross, which means that the payments

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<sup>16</sup> Settlement of payments is now also included in the concept of clearing activities. However, the Riksbank is explicitly exempt from the authorisation requirement. The definition in the new Clearing Act reads as follows: "For clearing participants, clearing activities refers to: requesting transfer of, balancing, confirming or making deductions of payment orders or establishing final positions prior to clearing or settling payments through final transfer (settlement)."

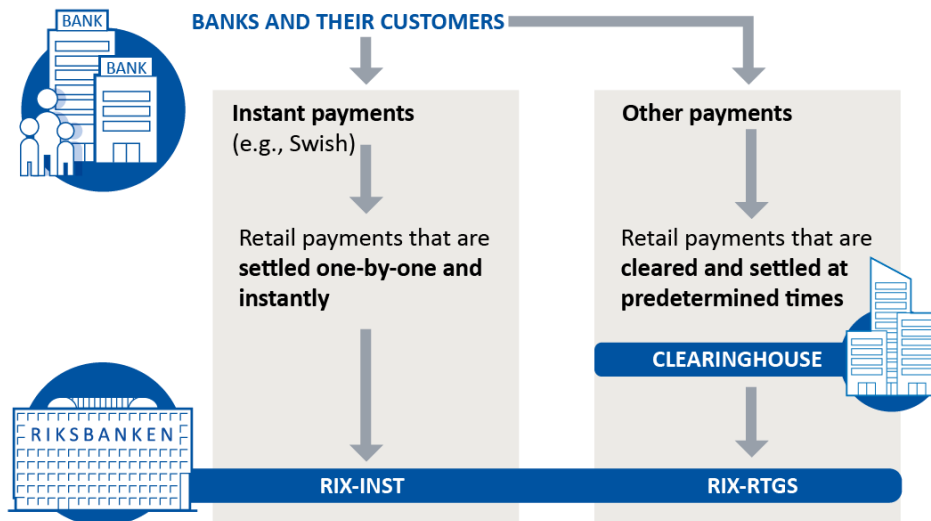
<sup>17</sup> For example, card payments are settled in commercial bank money.

<sup>18</sup> INST is an abbreviation for the word "instant".

are compiled and settled gross per counterparty in RIX-RTGS.<sup>19</sup> In June 2024 the Executive Board of the Riksbank decided to use the European Central Bank's (ECB's) T2 platform for RIX-RTGS.<sup>20</sup> The decision means that the Riksbank will continue to provide the RIX system to participants, but now by sharing the technical platform with the euro area countries and Denmark.

RIX-INST is the Riksbank's system for instant payments. Unlike RIX-RTGS, RIX-INST is open around the clock every day of the year and settlement in RIX-INST is instant. The Riksbank also uses the technical platform TIPS (Target Instant Payment Settlement), which is the European system for instant payments. There are two ways to settle instant payments in RIX-INST, the standard model and the Single Instructing Party (SIP) model.<sup>21</sup> The standard model in TIPS is equivalent to the introduction of the scheme (NCT INST) developed by the Nordic Payments Council for instant payments in the Nordic market. The Riksbank has set a requirement for all participants in RIX-INST to connect to NCT INST by November 2024. This makes it possible to develop more instant payment services.<sup>22</sup>

**Figure 3. Current infrastructure for the clearing and settlement of retail payments**



### Card payments settled in commercial bank money outside the Riksbank

A distinction is made between settlement in central bank money and settlement in commercial bank money. Central bank money is money issued by a central bank and can include cash, i.e. physical banknotes and coins, or digital money, such as that held by banks in accounts with the central bank. An alternative to central bank money is

<sup>19</sup> This means that the amounts to be paid by participant A to participant B and vice versa are cleared and settled separately without prior calculation of the net of the amounts of all participants' payments towards one another.

<sup>20</sup> [The Riksbank wants to use the European T2 platform for payment settlement | Sveriges Riksbank](#)

<sup>21</sup> For more information on the standard model and the SIP model, see also [The RIX payment system | Sveriges Riksbank](#).

<sup>22</sup> However, there is no obligation for the banks in RIX-INST to offer their customers such services.

commercial bank money. Commercial bank money is defined as money issued by a commercial bank and held in accounts at that bank.

To carry out a settlement, money needs to be held in an account with the operator where the settlement takes place, a settlement institution. If the settlement institution is a central bank, the money in the account is central bank money. If it is a private settlement institution, such as a bank, it is commercial bank money. By holding money in an account, the account holder takes a credit risk towards the provider of the account, as that money ends up on that provider's balance sheet.

International principles and guidelines, as well as European legislation, favour the use of central bank money for settlement. The reason is that settlement in commercial bank money involves a credit risk. There can be serious consequences if a participant has placed money with a commercial bank, and that bank goes bankrupt before settlement can take place. This is mainly for the participant itself, but also for the financial system as a whole. Participants risk losing the money they have in accounts with the bank. Settlement can take place without this credit risk if it is in central bank money. As a central bank cannot become bankrupt, the credit risk is eliminated.

Card payments in Swedish kronor are settled in commercial bank money outside of the Riksbank's RIX payment system, and without first being cleared by a clearing house. Until 2018, card payments with cards issued by VISA and Mastercard were settled on a multilateral net basis.<sup>23</sup> This meant that VISA and Mastercard calculated a net of card issuers' and acquirers' debts and claims from each other. They then sent the calculated net amount to a participating bank in Bankgirot, which acted as an agent and in turn transmitted the data to Bankgirot. Bankgirot then forwarded the data to the Riksbank for settlement in RIX. Clearing and settlement on a multilateral net basis entails counterparty risks. This is because debts and claims between all participants (card issuers and acquirers) would have to be recalculated if one of them were to go bankrupt before settlement.

A new method for clearing and settling Swedish card payments was introduced starting in 2019, and fully implemented from 2021. Under the new method, card issuers and acquirers are debited and credited in commercial bank money by the bank used by VISA and Mastercard. They are debited and credited based on calculation using the multilateral net method. Settlement is thus conducted outside the central bank in commercial bank money.<sup>24</sup> Card issuers and acquirers that do not have an account with the bank referred to by VISA and Mastercard must use a correspondent bank of VISA and Mastercard in Sweden to reach the payee's bank.

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<sup>23</sup> Net multilateral is the opposite of gross bilateral, as described in the footnote on the previous page.

<sup>24</sup> Settlement in commercial bank money means that payments are settled between commercial banks, instead of being settled in central bank money

## 2 Clearing and settlement in transition

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This section describes four main developments that have altered the conditions for the clearing and settlement of retail payments moving forward. First, a global transition to a new standard for payment messages is under way. Second, there is a trend towards broader adoption and use of instant payments. Third, new EU regulation requires that the payments infrastructure open their doors to new entrants. Fourth, the deteriorating security situation places higher demands on the resilience of the entire payment system to, for example, cyber-attacks. The need for pre-emptive measures to tackle money laundering and fraud also requires an updated payments infrastructure in Sweden.

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### 2.1 New standard for payment messages

Digital payments are reliant on communication between the parties involved in the payment – the systems must therefore communicate using the same ‘language’. Around the world, central banks, banks and financial infrastructure systems use the Society for Worldwide Interbank Financial Telecommunication (SWIFT) network and its formats and standards to make payments. SWIFT’s previous standard has limitations, including the amount of information that can be sent with a payment.<sup>25</sup> Consequently, in autumn 2020, SWIFT presented a strategy and timetable for a global migration to the new ISO 20022 message format. The global transition should be completed by November 2025 by all members of the SWIFT network. As of 2012, ISO 20022 has been mandatory in the EU as the standard for euro payments following a standardisation effort called the Single Euro Payment Area (SEPA).<sup>26</sup>

ISO 20022 consists of descriptions of the information that a payment message should contain, and how the message should be structured. The new standard also includes processes for handling error messages and queries, as well as rules for how to use the standard. ISO 20022 became the EU standard for payments in euro in 2012, with old formats fully phased out during a transition period that lasted until 2016. The transition to ISO 20022 for Swedish payments has taken time. In order to ensure the transition to the new standard, regional schemes have been established for the implementation of the standard. In the Nordic countries, the Nordic Payments Council (NPC) sets the rules for payments between banks and payment institutions. You can read more about the NPC in *FACT BOX - Nordic Payments Council*. Participants in RIX-RTGS must update many of their internal systems as the Riksbank adapts its settlement service and follows ISO 20022. RIX-INST already complies with ISO 20022, where the adaptation has already taken place.

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<sup>25</sup> Swift has followed its own standard called Message Type (MT).

<sup>26</sup> Regulation (EU 260/2012) establishing technical and business requirements for credit transfers and direct debits in euro.



By moving to the Nordic standard for instant payments, more retail payments will be able to be executed as instant payments in the future. The new format allows more information to be sent with payments and it contributes to better money laundering controls by increasing the traceability of international payments. The transition may therefore also increase banks' ability to comply with existing anti-money laundering rules.

## FACT BOX - Nordic Payments Council

In Sweden, the Nordic Payments Council (NPC) sets the standard and format for retail payments between bank accounts. The NPC is a standard-setting body, which both owns and manages the schemes for credit transfers and instant credit transfers. The NPC is the Nordic equivalent of the European Payments Council (EPC), which has a similar role in the euro area, and works to ensure that payments in the Nordic region look and function like European payments. The NPC sets the standard for retail payments in SEK, DKK and NOK, based on the European application of the ISO 20022 message standard managed by the EPC. The NPC can thus be seen as the body that harmonises payments and makes it possible to make processes faster and more efficient.

The NPC has developed schemes and rulebooks with guidelines and formats for payments from payers to banks, between banks and finally to payees. The schemes also include processes for handling returns and rejected payments. The scheme for credit transfers, called Nordic Credit Transfer (NCT), replaces the payment message format currently used by the clearing house Bankgirot for retail payments. Bankgirot is currently working on the development of a new retail payments infrastructure, which will follow the NCT. The new NCT format is a payment message format for credit transfers and it offers several advantages for Swedish retail payments. First, a payment message will be able to contain more underlying payments and more payment information, which will be more efficient than the message standard used today. Banks will be able to send messages directly to one another, without first having to adapt the messages to different systems, simplifying the clearing process. This is not possible with the standard used today. A third advantage is that batches of NCT payments will be able to be settled immediately without first having to be cleared by a clearing house. The clearing house's role will then instead be to initiate and ensure that settlement has been carried out in the Riksbank's settlement system RIX. See also *FACT BOX - Different methods for clearing retail payments* for a description of how clearing can work.

## 2.2 More instant payments

The trend in Sweden and internationally is that the volume of instant payments is increasing and there is a political push for more payments to be settled immediately. For example, the European Central Bank has developed a retail payments strategy, which argues that EU countries should work towards the immediate settlement of more payments in the future.<sup>27</sup> Instant settlement means that each payment is settled in seconds and individually, and that it is possible to make payments 24 hours a day, including at weekends and on public holidays. This can be compared with batch payments, which can currently only be finalised during the hours that RIX-RTGS is open.

The proportion of instant payments differs across countries, e.g. for the euro area and the Nordic countries.<sup>28</sup> The European Commission estimates that just over 17% of euro transfers are made by instant payments.<sup>29</sup> In Denmark<sup>30</sup> and Norway<sup>31</sup>, instant payments account for around 50 per cent of the total volume of credit transfers. In Sweden, the corresponding figure is 40 per cent.<sup>32</sup> Through the Instant Payments Regulation (IPR), the European Commission aims to increase the use of instant payments made in euro in the EU.<sup>33</sup> The IPR makes it mandatory for all payment service providers to offer the possibility to send and receive instant payments in euro around the clock. This applies to all payment providers that currently offer account-to-account payments in euro (SEPA payments). Examples of payment providers are banks and payment institutions. The Riksbank is currently investigating whether it is possible to make instant payments across different currencies through the ECB's Target Instant Payment Settlement System (TIPS). This investigation is joint work by the ECB, the Banca d'Italia and Danmarks Nationalbank. Available currencies are currently the Swedish krona, the euro and, from 2025, the Danish krone. Such a service would contribute to safer and more efficient instant payments between these currencies.

There are several advantages to instant payments, whether they are individual payments or batch payments. For example, instant payments can improve liquidity management, as the payee receives payment immediately or shortly after the payer initiates the payment. This is particularly important for smaller companies who may have more constrained liquidity otherwise. For private individuals, receiving a refund in the event of a return or complaint can be similarly valuable. A comparison of the economic cost of different payment instruments<sup>34</sup> also shows that instant payments via

<sup>27</sup> European Central Bank. (2024). *The Eurosystem's retail payments strategy – priorities for 2024 and beyond*. "Retail payments" is the English expression used.

<sup>28</sup> Instant payment are made in different ways in different countries. Calculations of statistics for instant payments and credit transfers should therefore be interpreted with some caution.

<sup>29</sup> European Payments Council. (n.d.). What are instant payments?. [https://www.ecb.europa.eu/paym/integration/retail/instant\\_payments/html/index.en.html](https://www.ecb.europa.eu/paym/integration/retail/instant_payments/html/index.en.html)

<sup>30</sup> Danmarks Nationalbank. (n.d.). *Statistikbank - Financial data and statistics*. <https://nationalbanken.statbank.dk/statbank5a/selecttable/omrade0.asp?PLanguage=1>

<sup>31</sup> Norges Bank. (n.d.). *Financial Infrastructure 2024*. <https://www.norges-bank.no/en/news-events/news-publications/Reports/Financial-Infrastructure-Report/financial-infrastructure-2024/web-report-financial-infrastructure-2024/>

<sup>32</sup> [Payments Report 2024 | Sveriges Riksbank](#)

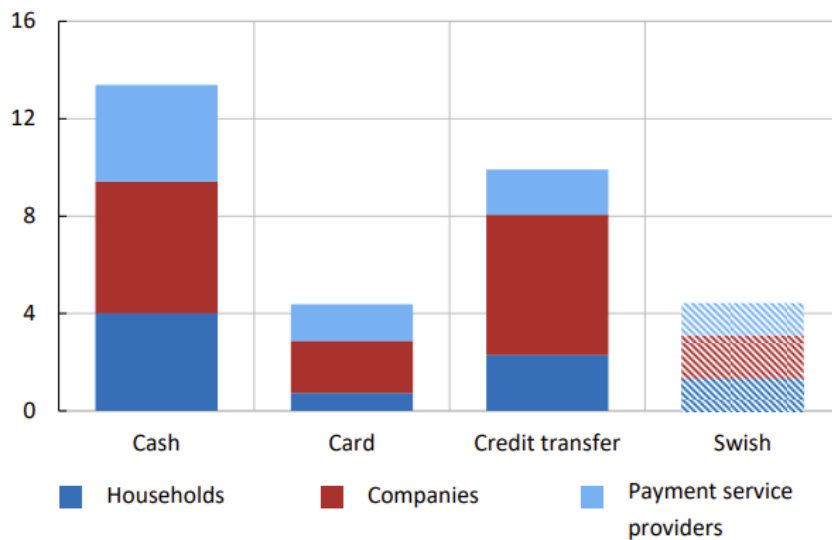
<sup>33</sup> Regulation (EU 2024/886) as regards instant credit transfers in euro

<sup>34</sup> Sveriges Riksbank. (2023). *Cost of payments in Sweden*, Riksbank Study.

Swish and card payments have the lowest unit costs, see Diagram 2. Instant payments can therefore benefit to society at large,<sup>35</sup> as payments reach the recipient directly. This applies regardless of whether the instant payments are settled one-by-one or in batches. An increased share of retail payments, settled immediately, may thus lead to increased price competition in the payments market. In Sweden, instant payments are offered via the Swish app. This is offered via the banks that have joined the Swish service.

**Diagram 2. Card and Swish payments have the lowest cost per payment**

SEK per transaction, 2023



Note. Swish is a type of account-to-account credit transfer but is shown separately in the figure. Cards include both debit and credit cards.

Source: The Riksbank.

However, there are disadvantages to instant payments. Immediate payments are not suitable, for example, for reservation purchases, where an amount is reserved in advance until a purchase is finalised. Examples of reservation purchases are when paying for fuel or hotel accommodation. Real-time settlement also makes it more difficult to carry out the necessary checks to counter money laundering and terrorist financing. This is because as payments are not collected and checked before, or as part of, a clearing process. Fraud can also be more difficult to prevent and address if it is only detected once it has occurred, as is likely if a payment is settled immediately. Another argument against more payments being settled immediately is that some kinds payments are better suited to being handled in bulk, for instance when payment should be received at a predetermined time. This applies, for example, when pensions and salaries are paid. The fact that payments are made at a specific time implies that they are pre-sorted by a clearing house. There is also a need for companies and banks to forecast their liquidity in advance, which can be difficult to do with instant payments.

<sup>35</sup> See also Sveriges Riksbank. (2023). *Cost of payments in Sweden*, Riksbank Study

In the future, the development and use of new technologies could mitigate some of the disadvantages of more instant payments.

## 2.3 The entry of new actors

Under current legislation, only banks and credit market companies, have direct access to payment systems such as RIX and Bankgirot's clearing service. In June 2024, the government presented a proposal for how more actors can gain direct or indirect access to the payments infrastructure in Sweden in the future.<sup>36</sup> This entails incorporating European legislation into Swedish law. The background is that the IPR contains amendments to the Finality Directive and that the amendments give payment institutions the opportunity to become participants in both the Riksbank's settlement system and in Bankgirot's system for clearing retail payments.<sup>37</sup> The IPR also introduces changes to the Payment Services Directive as applied to payment and e-money institutions. These amendments will also be implemented in Swedish law.

There are advantages to allowing more actors to access the payments infrastructure. For example, payment institutions may offer the same or similar services to end customers as traditional operators. It allows new entrants to compete to perform the same services more efficiently, or offer innovative services. From a socio-economic perspective, new entrants can create increased competition in the payments market, putting pressure on existing actors to speed up their own technological development. Increased competition in turn leads to a wider choice of service providers, which can lead to increased resilience, as there are more options if one fails.

## 2.4 Cyber threats and civil contingency planning for payments

Today, payment systems around the world face a new geopolitical reality. The risk of the Swedish payment system being exposed to cyberattacks has increased in recent years, as the payment system is largely digital. One reason is that several countries conduct systematic and extensive intelligence and security threat activities against Sweden and Swedish interests.<sup>38</sup> Operational capabilities that extend to managing the security of technical systems has therefore become of increased importance. This includes, for example, increased resilience in the face of both cyber-attacks and sabotage of critical electricity and data connectivity. Several new requirements have been introduced at both Swedish and European level in response to these new security challenges. The ECB has also emphasised the need for increased resilience among retail payment systems<sup>39</sup> The EU's Digital Operational Resilience Act for the financial

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<sup>36</sup> Fi2024/01477 (pp.30).

<sup>37</sup> Directive 98/26/EC on settlement finality in payment and securities settlement systems. Examples of payment institutions are companies that provide payment initiation services such as Tink AB or Trustly AB.

<sup>38</sup> Swedish Security Service. (2024). [A serious security situation](#).

<sup>39</sup> European Central Bank. (2024). *The Eurosystem's retail payments strategy – priorities for 2024 and beyond*.

sector (DORA) will begin to apply in 2025.<sup>40</sup> It imposes stricter requirements on most financial firms to increase the resilience of their systems. However, clearing houses are not covered by the Act. Nevertheless, at the national level, legislation on the security of Swedish clearing houses is being tightened. The new Swedish Clearing Act imposes new and stricter requirements on clearinghouses (including Bankgirot) regarding risk management, cybersecurity and contingency planning, although these requirements are not as extensive as the DORA requirements.<sup>41</sup> The law also imposes new requirements for the outsourcing of activities, including that Finansinspektionen must approve outsourcing agreements. The new legislation also aligns Swedish law with international standards for financial market infrastructures.<sup>42</sup> Clearinghouses are also subject to the Protective Security Act under Finansinspektionen's supervision.<sup>43</sup>

Under the Sveriges Riksbank Act, the Riksbank has a responsibility to ensure that the public is able to make payments both in crises that occur during peacetime and in a situation of heightened alert. In practice, this means that the Riksbank makes demands of companies that conduct activities that are of particular importance for payments. For example, the Riksbank may require that a company have both internal work on civil preparedness and participate in the Riksbank's work. The Riksbank considers clearing and settlement to be of particular importance for the execution of payments, and clearing houses are therefore covered by the Riksbank's regulations on civil preparedness.<sup>44</sup> The Riksbank's settlement system RIX-RTGS must also have the capacity to continue its operations during peacetime crises and in the event of elevated preparedness. The Riksbank monitors that companies fulfil their obligations.

## 2.5 Money laundering and fraud

Incidences of money laundering and terrorist financing in the Swedish payment system also pose a threat to the financial system and to public safety. The Anti-Money Laundering Act<sup>45</sup> requires banks to monitor their customers and report suspicious payments. In July 2024, the government proposed that clearinghouses should also be required to monitor transactions, provide information on suspicious transactions to banks and report suspected money laundering or terrorist financing to the Swedish Police Authority.<sup>46</sup> Trust in the financial system can be damaged if its institutions are associated with illicit assets and money laundering. This in turn threatens financial stability. Fraud is also a major and growing social problem that benefits organised crime. At the same time, consumers withstand the worst of the losses, often falling

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<sup>40</sup> Regulation on Digital Operational Resilience for the Financial Sector (Dora) (EU 2022/2554)

<sup>41</sup> Förordning (2024:127) om clearing och avveckling av betalningar ("Clearing Act")

<sup>42</sup> The Clearing Act means that large parts of the CPSS-IOSCO's international principles, PFMI, become Swedish law.

<sup>43</sup> The Protective Security Act (2018:585). The CPSS has been renamed the Committee on Payments and Market Infrastructures (CPMI).

<sup>44</sup> The Riksbank's regulations for civil preparedness affect the six largest Swedish banks, Bankgirot and Getwisch, among others.

<sup>45</sup> Lag (2017:630) om åtgärder mot penningtvätt och finansiering av terrorism (The Anti-Money Laundering Act)

<sup>46</sup> FiU2024/01527.

victim to fraud.<sup>47</sup> Money laundering and fraud therefore pose a threat to the public's right to make secure payments in Sweden.

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<sup>47</sup> Finansinspektionen. (2024). *Fraud prevention in payment services*. According to FI's report, incidences of fraud have increased in recent years, and the efforts of banks and payment service providers to combat fraud have been insufficient.

## 3 The way forward for clearing and settlement of retail payments in Swedish kronor

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Here we describe the Riksbank's expectations of the infrastructure for clearing and settlement of retail payments in Swedish kronor.

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### 3.1 The state and private actors have a shared responsibility for the payments infrastructure

The modernisation of the Swedish payments infrastructure places high demands on both private and public actors. The state and other participants in the payment market have a shared responsibility for developing, operating and maintaining the Swedish payments infrastructure. They will continue to do so in the future. **Continued co-operation and a clear division of responsibilities between the state and market participants are therefore needed.**

**The Riksbank is responsible for the safe and efficient settlement of retail payments in central bank money.** The Riksbank offers two settlement services for settling retail payments in central bank money: one for instant payments and one for batch payments. Retail payments should be settled in central bank money whenever possible, as this is the safest way to settle different types of retail payments definitively.<sup>48</sup> In addition, it is most efficient to have *one* settlement system for settlement in Swedish kronor. This is the result of network effects and economies of scale in the payments infrastructure.

**The state will continue to ensure, through oversight and supervision, that the private payments infrastructure complies with applicable laws and regulations.** It is important for Sweden to have a well-functioning retail payments infrastructure. The state is also responsible for paying benefits and pensions and receiving taxes. This is done by the government's internal bank, the Swedish National Debt Office, which is responsible for the procurement of services that deliver these retail payments. Many bulk payments are vital for the population, which requires that the right amount be paid at the right time.

**Private operators are responsible for clearing retail payments and the development of new innovative payment methods.** Today, the Swedish banks are responsible for ensuring that retail payments comply with international standards, and that it is possible to clear retail payments that require clearing. It is still reasonable that participants

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<sup>48</sup> The reason for this is that a central bank can never go bankrupt, which means that the central bank is the best actor to manage the credit risk arising during a payment. A claim on the Riksbank, in the form of money in an account in the Riksbank's RIX system to be used as payment from one bank to another, always retains its value and is thus a risk-free exposure.

be responsible for clearing retail payments, while the Riksbank provides the infrastructure for settling payments. It is ultimately the responsibility and task of the market to ensure a functioning clearing of retail payments in Swedish kronor. *The Principles for Financial Market Infrastructures* (PFMI) provide guidance on good governance of financial infrastructure firms.<sup>49</sup> **Governance of clearing houses will continue to be based on these principles.** If market participants do not succeed in their task, it may be necessary for the government, including the Riksbank, to take greater responsibility for steering the development of the retail payments infrastructure in Sweden.

## 3.2 Infrastructure must comply with international standards

**Swedish retail payments should look and function like European retail payments, using the NPC schemes.** All participants in the Swedish retail payments market – banks, payment institutions and clearing houses – need to be able to process payments that follow the ISO 20022 standard. This is according to the schemes developed by the NPC together with the payment market participants.<sup>50</sup> The NPC schemes ensure harmonised Nordic alignment with the ISO 20022 standard, and are consistent with the European Payments Council (EPC) schemes for retail payments in euro. It is time for participants in the clearing and settlement systems to migrate to the new standard for their retail payments.

**The use of NPC schemes supports the fight against money laundering.** Payment orders under the new schemes will contain more information than today, which will support operators in their efforts to combat money laundering, fraud and terrorist financing. Adaptation and development of technical systems, services and processes should be seen as an enabler and a basis for a secure and efficient Swedish retail payment market.

**Standardisation is important because it leads to increased innovation and competition in the retail payments market and fosters the development of cross-border payments.** When Swedish retail payments look and function like European payments, the development and innovation of new services is favoured. It also facilitates the emergence of new actors in the payments market, which is currently limited to a few actors. Furthermore, Sweden is a small market with close links to the outside world. Standardisation is therefore a prerequisite for cross-border interoperability and for Sweden to participate in the development of the global payment market.

## 3.3 The infrastructure must be able to process payments instantly and at predetermined times.

**In future, the retail payments infrastructure should be able to handle retail payments that are settled instantly, those settled at a pre-determined time, and those**

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<sup>49</sup> CPSS and IOSCO (2012). *Principles for Financial Market Infrastructures* (PFMI). In addition to the PFMI, there is further guidance from CPSS-IOSCO that emphasises the importance of governance and oversight of financial infrastructure firms that provide critical systems to the financial system.

<sup>50</sup> In 2025, the Riksbank will migrate RIX-RTGS to ISO 20022 for the settlement of large-value payments. RIX-INST already settles instant payments under NCT Inst.



**that require clearing before settlement.** Sweden has long been at the forefront of developing new payment methods. For example, the development of BankID and Swish by the banks has enabled individuals to make instant payments. However, when it comes to modernising the underlying infrastructure, recent progress has been slow. This applies in particular to clearing retail payments. As the payments market is constantly evolving, a new modern infrastructure is needed to meet market needs.

**The infrastructure should be ready for more instant retail payments in the future.** As technology, IT systems and regulations in the Swedish retail payments market change, there may be scope for more payments to be settled immediately. The infrastructure should make it possible to settle retail payments either individually, or as a batch that is processed by a clearing house. Both kinds of payments can then be settled instantly in the Riksbank's settlement system. It is important that retail payment infrastructures are able to process payments according to market needs and consumer expectations. The NPC's scheme for account transfers can be used to send several underlying payments in a payment message to RIX-INST for immediate settlement via initial clearing, carried out by a clearing house.

**The infrastructure will continue to offer retail payment clearing.** Banks in the Swedish payment market still need clearing for certain retail payments. This is the case, for example, for invoice payments to a single recipient and salary payments sent from the one bank to several different recipients. Clearing also facilitates the fight against money laundering and fraud. Clearing also allows the payer, the payee and the bank to plan their respective liquidity needs. The centralised management of many payments allows for a more efficient control of the accuracy of different payments before they are settled and finalised. Instant payments are more difficult to control in the same way with today's technology, as they are expected to happen in seconds. This is a future challenge in the battle against money laundering and fraud.

**The government and the market should continue to have a dialogue on how RIX-INST can be used in the future.** An increased share of instant payments would mean that more payments are settled in RIX-INST. Settling more instant payments can increase the efficiency of the Swedish retail payments market, but needs to be done in such a way that it does not lead to an increase in fraud, money laundering and terrorist financing.

### 3.4 The infrastructure must be able to accommodate new entrants

**The infrastructure needs to create the conditions for more actors to be safely admitted.** Although payment and e-money institutions are subject to some regulation, the supervision and requirements imposed on these firms are less extensive than the legislation covering banks and clearinghouses. Nor are payment institutions subject to the same contingency planning requirements that the Riksbank imposes on companies that are important for maintaining the public's payments during peacetime crises and elevated preparedness. It is therefore up to clearing and settlement infrastruc-

tures to make adjustments to minimise the risks introduced by new entrants. However, it is important that such adjustments to the infrastructure systems are proportionate, so that new entrants are not deterred as this would negatively impact competition and innovation in the Swedish payment market. Adjustments to participation agreements and risk management should be proportionate and balanced.

**The infrastructure should impose the same preparedness requirements on new entrants as are imposed on current participants.** The Riksbank encourages the entry of new actors, which is why it remains important that the retail payment market is robust. New entrants need to be able to manage operational risks, anti-money laundering compliance and cybersecurity, as well as fulfil the same high liquidity requirements as existing participants.

### 3.5 Retail payments, including card payments, should be settled in central bank money

**Settling payments in commercial bank money is riskier than settling in central bank money.** As a central bank cannot fail, this removes the credit risk for participants in a settlement system provided by a central bank.<sup>51</sup> Settlement of payments in Sweden shall therefore, as far as possible, be carried out in the Riksbank's settlement system.

**Card payments should also be settled in the Riksbank's system, according to the same method as other payments.** As card payments account for more than 80 per cent of in-store payments, disruptions to the card infrastructure can have serious consequences. The method of settling card payments on a multilateral net basis means that non-payment by one party may affect several participants and may lead to defaults by them as well. This may lead to contagion and have a negative impact on the stability of the financial system as a whole.

**The Riksbank welcomes a continued dialogue to find a new model for settling card payments.** Today, card payments are settled in commercial bank money, even though they account for the majority of retail payments in Swedish kronor. Settling in commercial bank money is riskier than settling in central bank money. This can be avoided if card payments revert to being settled under the bilateral gross central bank money model via RIX.<sup>52</sup>

### 3.6 The infrastructure must be resilient

**Critical IT systems, which provide clearing and settlement of retail payments, need to have strong technical protection and redundancy against cyber-attacks and other types of disruption.** Functioning payments are necessary for society to function. Given the current global situation, there are good reasons for increased focus on the

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<sup>51</sup> Lena Wiberg. (2024). Settlement in central bank money from a financial stability perspective, Economic Commentary, Sveriges Riksbank.

<sup>52</sup> The Principles for Financial Market Infrastructures (PFMIs) state that a system or firm that settles payments should do so in central bank money whenever possible.

resilience of payment infrastructures. The ability to withstand cyber-attacks is also crucial for Swedish payments during peacetime crises and heightened preparedness. The payments infrastructure should meet the level of capability set by the DORA Regulation to ensure that payment systems as a whole are robust. Robust cybersecurity offers some protection against attacks, but in the event of a cyber-attack or other serious operational disruptions, the ability to respond rapidly is also required. Redundancy, for example, for more actors to establish offline servers, also support a quick reaction when a regular IT system is attacked. From a socio-economic perspective, it is also capacity enhancing if there are different payment methods to use if one payment method stops working. This applies in normal times as well as in peacetime crises and at times of elevated preparedness.

**When outsourcing, there must be a clear division of responsibilities between the owner of the infrastructure and operations by the supplier.** The retail payments infrastructure of the future is likely to involve some degree of outsourcing.<sup>53</sup> Actors who provide retail payment clearing and settlement use suppliers for both operations and the development of new systems and services. This offers advantages in terms of flexibility. However, operational risks can arise when key functions are separated in this way. The new Clearing Act imposes stricter requirements for the outsourcing of activities. For example, a provider of clearing systems may only outsource if it is responsible for ensuring that the provider's operations are operationally sound and subject to adequate governance and control. Therefore, it is important that there is a clear division of responsibilities between the owner of the system and the supplier who has been contracted to operate the system.<sup>54</sup>

**Infrastructure owners should be aware of systemic and concentration risks resulting from outsourcing.** There are many risks associated with outsourcing critical functions, as happens in clearing and settlement systems. One example is that the actor becomes too dependent on one or more suppliers, which can make it easier for a hostile actor to carry out a cyber-attack against Sweden. The risk of cyber-attacks can be even higher if the supplier is based abroad. If several payment infrastructure participants use the *same* provider for their outsourced activities, a risk of disruptions spreading to several participants also arises. In the worst case scenario, this could have a negative impact on the stability of the payment system.<sup>55</sup> Therefore, when outsourcing, systems need to have adequate backup solutions in place, and robust business continuity solutions.

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<sup>53</sup> Both RIX and Bankgirot have extensive outsourcing of their IT operations to another supplier.

<sup>54</sup> For example, there needs to be good collaboration between the parties and the owning party needs to ensure that suppliers have adequate incident management frameworks, business continuity arrangements, cyber protection and back-up solutions, so that a disruption can be handled quickly.

<sup>55</sup> Among other things, the Financial Sector Private-Public Collaboration (FSPOS) has produced a guide to support financial actors in how to work with business continuity management when outsourcing. See FSPOS. (2021). *Guide to Business Continuity Management* for more information.

## 4 Concluding remarks

In this Riksbank study, we have discussed how the clearing and settlement of retail payments in Swedish kronor could look and function in the future. The study presents the Riksbank's views on how the future infrastructure for the clearing and settlement of retail payments should be developed.

We have identified that Sweden needs a modernised infrastructure and associated processes for secure, efficient and accessible retail payments. The infrastructure of the future will have to comply with European standards, be ready to receive retail payments at different times, and be able to handle the entry of new actors using new technologies. Payments should, as far as possible, be settled in accounts at the Riksbank. This is to minimise risk, so that the public can maintain a high level of confidence in the Swedish payment system. New actors, such as payment institutions and e-money institutions, need to be able to access clearing and settlement of payments at the Riksbank. At the same time, the infrastructure of the future needs a high level of protection against cyber-attacks and other disruptions.

It is hoped that this new direction will promote innovation and development in the Swedish payments market, and provide the Swedish retail payments market with a sound and competitive foundation for the future.

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