

SPEECH



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Should the Riksbank's payment system be open 24/365?*

The central bank's role in the Swedish payment infrastructure has increasingly come into focus at the Riksbank.¹ I am aware that this is an area that may not perhaps interest the general public as much as negative interest rates, housing prices, cash-free shops, the krona exchange rate and other things normally associated with the Riksbank. Most people are not – to be honest – very interested in how the “plumbing” works that enables millions of payments to be made every day, to a total value of hundreds of billions of krona. This is not really surprising. Payments are not an objective in themselves, but a means of making our day-to-day life work; getting our wages, paying our bills, buying food, giving the children pocket money, saving for our retirement and so on. But, like other central banks, the Riksbank has been given the task of promoting a safe and efficient payment system. We at the Riksbank therefore need to understand how the payment system is put together and to consider what measures and investments are needed to ensure it remains safe and efficient.

The Swedish payment market has changed rapidly over the past decade. Households are to a greater extent choosing electronic means of payment instead of cash, and there are increasing requirements that payments should be made easier and should reach the recipient faster.

This development also means that the Riksbank's role in the payment market is changing. As the use of cash has declined, the Riksbank is wondering whether it is desirable and possible to issue electronic central bank money to the general public, so-called e-krona. But today I don't intend to discuss the e-krona. Instead I would like to focus on the role of the Riksbank in the payment infrastructure that

* I am grateful to Martin W Johansson who has helped me prepare this text. Thanks also to Anders Vredin and Marianne Sterner for valuable comments.

¹ A payment infrastructure can quite simply be said to consist of two parts; the technical platform (hardware, software and other technical components) required to execute a payment, and the regulatory framework and corporate form.

banks and other financial institutions use to pay one another. This infrastructure is used in the background when most of the payments in Sweden are executed, or settled, as it is also called.

Central banks play an important role in enabling households and companies to make payments to one another by using financial institutions as an intermediary. The Riksbank functions as a hub and supplies a payment system with accounts where financial institutions can hold money (“central bank money”). The institutions that take part in the Riksbank’s payment system can then pay by moving money, on behalf of themselves or their clients, between the participants’ accounts.

When central bank money is used in a transaction, an asset with counterparty risk is converted into a safe and liquid claim on the central bank. Central bank money is safer than other money, as a central bank can always meet its obligations in domestic currency. It is important for financial institutions to be able to pay in central bank money, as they would otherwise be burdened with counterparty exposures when paying.² Central bank money and the possibility to make safe payments are thus closely linked.

The Riksbank needs to adapt its payment system so that the infrastructure remains safe and cost-efficient as technology develops and the payment market is changing. A growing trend both in Sweden and abroad is that households and companies expect to make payments at any time they like. The payment system we offer today therefore needs to be supplemented with a new system that is open 24 hours a day and adapted to the instant settlement of large volumes of payments. My assessment is that the best way for the Riksbank to attain this target is to make the Swedish krona available on the same technical platform as the European Central Bank (ECB) and the Eurosystem use.³ By taking advantage of the economies of scale that arise here, the right conditions are created for cutting transaction costs for Swedish households and companies. It would also mean that the Swedish payment infrastructure is to a greater extent harmonised with the rest of the EU, which can increase competition and the quality of the payment services offered to Swedish customers.

RIX plays a central role in the Swedish payment system

The payment system the Riksbank currently supplies to financial institutions is called RIX. Institutions wishing to become participants in RIX enter into an agreement with the Riksbank. The Riksbank is a public institution, which means that entry to the RIX system is given on competitively neutral terms to institutions meeting the conditions that are set.

It is difficult to overestimate the importance of RIX for the Swedish economy. From the time that RIX opens at 0700 hours on a typical working day until it closes at 1700 hours, a good 20,000 payments are settled to a total value of more than

² According to the international standards on financial infrastructure issued by the CPMI-IOSCO, systemically important infrastructures should settle in central bank money whenever it is practically possible.

³ The Eurosystem consists of the European Central Bank and the national central banks in the euro area.

SEK 600 billion.⁴ RIX is the hub of the Swedish payment system and it is therefore also logical that the functions and accessibility of RIX will be in focus when the Riksbank upgrades its capacity to meet the challenges of the future payment market. The Riksbank is not in any unique situation in this respect. Many other central banks are now considering upgrading their payment systems.

Payment flows now...

Historically there has been a differentiation between large-value and smaller payment, also known as retail payments. The large-value payments include payments between the banks' major customers, international payments, payments to and from financial infrastructures and the Riksbank's own transactions. This type of payment is often large, time-critical and settled one by one in RIX according to the principle of "first in, first out".⁵ Retail payments are the millions of smaller everyday payments made between households, companies and authorities, for instance card payments in the retail trade, wage payments, pensions and normal payment of invoices.

Retail payments that are not settled directly are normally first compiled and aggregated by a clearing house (in Sweden by Bankgirot) and then settled in RIX according to a predetermined timetable, this is also known as batch clearing. However, this regime is now being disrupted as technology has reached such a level of maturity that it is possible to send small payments without clearing to reach the recipient in the space of seconds. At the Riksbank we call this type of payment an instant payment.⁶ This is often called "swishing" in popular speech, after the mobile app used to make the payment. Swish has really taken Sweden by storm and is one reason why the use of cash is declining here.⁷ Today around 70 per cent of the Swedish population has access to the app and in 2018 almost 400 million instant payments were made with it.

The settlement of a payment by Swish takes place on a platform known as "Betalningar i Realtid, BiR" (payments in real time), which is owned by Bankgirot. Swish payments are thus settled in money issued by a commercial institution and therefore differ from other payments that are settled in central bank money. Another difference between BiR and RIX is that BiR is accessible 24 hours a day, every day of the year, "24/365". The average transaction in BiR is much smaller than the average transaction in RIX, which is a natural consequence of the payments made with the Swish app being small. However, there are no technological limitations preventing larger payments being settled instantly. But there will then be high demands on the safety of the settlement procedure, and settlement should then be in central bank money.

⁴ The Riksbank has decided to extend the opening hours for RIX from 0700-1700 to 0700-1800 with effect from October.

⁵ Almost all central banks own and operate payment systems with the same kind of functions as RIX. These systems are referred to as "Real-Time Gross Settlement" (RTGS) systems or "Large Value Payment Systems" (LVPS).

⁶ Instant payments is the most common term; other terms include "real-time payments" or "faster payments".

For a more detailed description, see [The quest for speed in payments, BIS Quarterly Review, March 2017](#).

⁷ See [Payment patterns in Sweden 2018, Sveriges Riksbank](#).

... and in the future?

It is of course impossible to know how the payment market will look in 5-10 years' time, but a qualified guess is that instant payments will become increasingly important. New payment products that are introduced can be settled immediately if the client so desires, for instance, through online banks, "point of sale" or e-commerce platforms. Many payments that are now cleared by batch clearing will probably move to instant settlement. For instance, since 2018 it has been possible to make payments by Swish to the Swedish Tax Agency.

It is also conceivable that a mixture of batch-based and instant settlement may arise, where payments are settled individually but at predetermined points in time. In the long run, it is not improbable that some of the payments now made separately in RIX will move to other platforms that enable instant payments. It is clear at any rate that the taxonomy used for payments (large-value/retail, instant settlement/batch settlement and time-critical/not time-critical) will become more blurred.

The Riksbank is standing at a crossroads here. Should the Riksbank continue to supply solely an infrastructure equivalent to RIX that is primarily suitable for large-value, time-critical payments during office hours on weekdays and leave the other settlement of payments between financial institutions to the private sector? Or should the Riksbank also supply an infrastructure that enables settlement in central bank money in seconds 24/365? Or to put it a different way: Should the Riksbank's payment system be open all the time?

Do we need a settlement service 24/365?

The answer is not entirely clear, but much indicates that the Riksbank will find it more difficult to carry out its task of promoting a safe and efficient payment system in the future if we don't raise our level of ambition regarding the services now offered to RIX participants. I see two main reasons for this.

First, settlement in central bank money is the safest means of settling payments. Private settlement platforms can, with the aid of the central bank, imitate part of the security offered by settlement in central bank money. In Sweden, this is done by the institutions that are participants in BiR allocating money in a special client funds account in RIX that acts as collateral for the payments settled in BiR.

This hybrid system has enabled instant payments in Sweden without the Riksbank's payment system having to be rebuilt from scratch. As long as the volumes are relatively small, this type of system is fully adequate, but financial stability will become increasingly dependent on the reliability of these hybrid systems if the volumes increase substantially. Sooner or later one therefore reaches a point where it is difficult to see the value of a hybrid system that tries to copy the safety offered by central bank money if the central bank could just as well offer this settlement itself. The Riksbank would in addition be able to offer participants better and more cost-efficient liquidity management than is possible in a private system.

Second, the payment system is one of the economy's critical infrastructures. The institution that is responsible for the settlement of payments between financial institutions gains a considerable influence over the payment system as a whole. If

the settlement of payments had been a branch characterised by substantial competition and low entry barriers, it would not have been problem. But as payment settlement is instead characterised by economies of scale and network effects, Sweden actually has to choose between a public monopoly and some form of private monopoly. Even a privately-owned infrastructure can be supplied in a competitively neutral way without creating monopoly profits, but it must in that case be accompanied by regulations, supervision and oversight which is once again an unnecessary detour if the infrastructure could just as easily be directly supplied by a central bank.

I therefore believe that both financial stability and competition on the payment market would benefit from the Riksbank supplying a payment system that is available whenever the participants wish to use it.

Platform sharing with other central banks is cost-effective

Platforms for settling instant payments must be able to process a large number of payments, be accessible 24/365 and offer first-class continuity solutions. The systems are therefore expensive and complex to develop. We have not calculated in detail how much it would cost for the Riksbank to develop or procure a system for the settlement of instant payments, but simple business economics speak against this type of project.

Payment infrastructures entail substantial fixed costs. In addition to development costs, there are operating costs for personnel and IT and communications systems. Moreover, the payment system must be protected against various forms of threat, for instance, cyber attacks and large-scale frauds.⁸

The Swedish market is not sufficiently large to carry such a platform on its own shoulders cost-effectively. If the Riksbank is to supply a settlement service for instant payments, it is therefore preferable if it can do so by sharing a technical platform with other central banks. The more who share the cost of running the platform, the cheaper it will be and the more attractive to use.

Platform sharing with the Eurosystem

As I mentioned earlier, the Riksbank is not the only central bank thinking about how its payment system needs modernisation to meet the demands of tomorrow, not least with regard to instant payments. The Eurosystem therefore decided in 2017 to add a new technical platform to its payment system TARGET2 (the Eurosystem's equivalent to RIX). This platform is called the Target Instant Payment Settlement (TIPS). It has been developed and run by the Italian central bank since November 2018.

During the spring the Riksbank has investigated the potential for using TIPS to settle instant payments in Swedish krona. The platform was initially built with the function of being able to settle payments even in other currencies than the euro,

⁸ See [Reducing the risk of wholesale payments fraud related to endpoint security, CPMI Papers No 178, BIS 2018](#).

and our assessment is that there is no technical obstacle to settling payments in Swedish krona there. Moreover, it doesn't cost anything to join TIPS over and above the adaptations the Riksbank and the market need to make to their IT and communication systems. Joining the platform involves the central bank wishing to participate entering into an agreement with the ECB and the Eurosystem.

If the Riksbank decides to use TIPS, the settlement of instant payments in Swedish krona will thus take place in Italy, where the platform is located. As the Riksbank would then be outsourcing the operation of the system to an external party, the TIPS operations must meet the requirements made by Swedish legislation. In addition to these requirements, the outsourcing process would also raise a number of broader issues regarding national self-determination.

It may be worth reminding you that the Swedish payment infrastructure is already dependent on external parties. Let me give some examples: RIX has been procured from a South African company, the settlement of Swedish securities takes place in Euroclear's technical system in France, Swedish banknotes are printed in the United Kingdom, the communication network used to send payment orders between Swedish financial institutions, which is required for instance when customers make normal cash withdrawals, is owned by an international cooperative society with its headquarters in Belgium (SWIFT) and card transactions in Sweden are cleared through two American corporations.

The idea of a Swedish payment mechanism that can function without links to other countries has long been outpaced by reality and it would be just as unrealistic to imagine, for instance, that the Swedish pharmaceuticals industry could meet all the needs of the Swedish health service. The challenge for a small country like Sweden lies instead in being able to benefit from international cooperation by choosing counterparties that are reliable in the long term and with whom we have good relations, such as the ECB. Although Sweden does not have the euro as its currency, the Riksbank has long had a deep collaboration with the ECB on central bank issues. Countries such as Finland, Denmark and our Baltic neighbours consider that platform sharing with the Eurosystem is a secure solution. I believe it would work well for Sweden, too.⁹

Another question someone might have is whether TIPS can in some way be regarded as a first step towards introducing the euro in Sweden. The answer to that question is "no". It is the Riksdag, the Swedish Parliament, that decides what currency will be used in Sweden. TIPS is an IT system used to settle payments and it does not affect the Riksbank's capacity to conduct monetary policy, foreign exchange policy or to give emergency liquidity assistance in Swedish krona. Thus, the question of whether to join TIPS has nothing to do with being for or against introducing the euro as Sweden's currency.

It is, however, important for the Swedish krona's status as an independent and internationally viable currency that it is not perceived to be more complicated, expensive or unsafe to make payments in Swedish krona than in other currencies.

⁹ Denmark has not taken a stance on TIPS, but uses the Eurosystem's pan-European platform for securities settlement, T2S.

This means that the settlement services offered by the Riksbank to financial institutions must be at least as safe and efficient as those available abroad. From this perspective, too, it would appear a good idea to share a technical platform with the euro countries.

How will RIX and TIPS co-exist?

If the Riksbank begins using the TIPS platform to offer settlement of instant payments, RIX needs to change its form and function. It is not appropriate to go into all the details here and now, so let me just describe the arrangement on a general level.

The current RIX system (hereafter referred to as RIX_{RTGS}) will remain in place. When RIX_{RTGS} closes for settlement at the end of the working day, the Riksbank will implement its monetary policy transactions, just as it does today. But RIX_{RTGS} will additionally be equipped with some new features. For instance, a participant in RIX_{RTGS} will have access to intraday credit almost 24 hours a day, compared with today when it is only available during RIX's normal opening hours.

In addition to RIX_{RTGS}, settlement will be available 24/365 via the TIPS platform (hereafter referred to as RIX_{INST}). To make it easier for the participants to manage their liquidity, it will be possible to move liquidity within the RIX family from RIX_{RTGS} to RIX_{INST} and vice versa around the clock, which guarantees smooth and cheap settlement of payments.¹⁰ The aim is that an institution wishing to become a member of RIX_{RTGS} will not need to be a member of RIX_{INST} or vice versa.

If we add the TIPS platform to RIX, it will thus be possible for financial institutions to settle payments in central bank money around the clock.

How would TIPS affect the Swedish payment market?

If the Riksbank decides to use TIPS to provide a settlement service 24/365, most private individuals and companies will not notice any difference in the short term. However, the institutions participating in RIX_{INST} will need to adapt their message formats and processes to the regulatory framework applying for instant payments in large parts of the rest of Europe.

As with all other harmonisation, there will be a balance between a possible need for tailor-made national solutions and the profits that can be reaped from full participation in the EU's single market. Of course there may be advantages if a market "does its own thing", but in the long run I believe that Sweden has a lot to gain in adapting to the rest of the EU in this respect. Sweden is ahead of its European neighbours in the journey towards a cashless society, and Swedish banks and FinTech companies are well-equipped to continue launching innovative payment services.

¹⁰ As far as monetary policy is concerned, it is only the participant's *net* position with regard to the Riksbank that is important. If a participant in RIX borrows, say, SEK 10 billion in RIX_{RTGS} and invests the same amount in its account in RIX_{INST} the net position with regard to the Riksbank and thus the participant's interest expenditure, will be zero.

Using the same technical platforms as most of the rest of Europe will, I believe, make it easier for Swedish payment service providers to establish themselves in Europe. And in the same way it will become simpler for foreign companies to compete in Sweden. It is also probable that it will become easier to make instant cross-currency payments in the future if the central banks use the same technical platform to settle payments.

What happens next?

During the spring, my colleagues on the Executive Board and I have discussed the Riksbank's future role in the payment infrastructure. My baseline in these discussions was that Sweden – like most other countries – has long had a model where the banks have settled payments in risk-free accounts in the central bank. This has been important in preserving the stability and credibility of the payment system. Now that the payment market is moving towards larger, more numerous and more important payments outside of RIX normal opening hours, the Riksbank needs to modernise the services it offers so that central bank money remains the norm when financial institutions settle payments. My colleagues have essentially expressed similar views.

Last week we therefore decided to contact the ECB to initiate discussions on an agreement that would make the Swedish krona available for settlement on TIPS. An absolute requirement that we have in these discussions is that the security surrounding TIPS must correspond to the expectations in Swedish legislation.

It is still too early to say when TIPS could be available for the Swedish krona, but if it all works out, I am hoping it will be in 2021. When the Riksbank supplies a settlement service that is available 24/365 our expectation is that the RIX participants settling instant payments will use the platform offered by the Riksbank. But we will proceed with caution and support the private solution that is available, BiR, until TIPS is introduced and all conditions for using it are in place. During the implementation period the Riksbank will make sure to have a close dialogue with the market and be responsive to views and wishes on how TIPS can be made available to the Swedish krona. We will return to the exact forms for such a consultation later in the autumn.