

# Economic Commentaries

## Future money and payments

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Money and the way we pay are undergoing significant changes now that the economy is being digitalised. Where we previously exchanged cash, we now mainly pay by moving funds between one another's accounts. The changes have many advantages, but also entail disadvantages and risks.

The Riksbank has the task of ensuring that payments can be made safely and efficiently and that the krona retains its value. For this to be possible, cash needs to be both protected and supplemented with a digital alternative. We must also create the conditions required for digital payments to become more efficient. The Riksbank is already well under way in this work. But we also need help from the Riksdag (the Swedish Parliament) and the Government.

## Cash has its roots in an earlier time

Today's monetary system and cash have their roots in the 19th century, a time when bookkeeping and exchange of information took a lot of effort, time and was paper-based. It is easy to understand that cash was then a superior means of payment. Cash required in principle no communication and no work. Moreover, the recipient had the money directly.

In time, new technology has made it easier and faster to pay with what we usually call *commercial bank money*, that is, our deposits in bank accounts. At the beginning, this involved cheques and paper-based giro transfers. Later, we moved on to electronic payments, such as card payments.

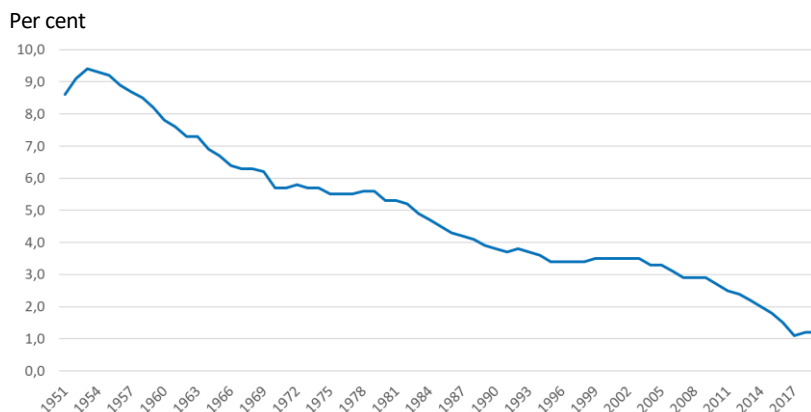
In recent years, the internet and digital technology have meant that bookkeeping and exchanging information can occur instantly and in principle require no work at all. New technology is being used to the full by some payment services. One example is the Swish payment service, where we can now make instant transfers between bank accounts 24/7.

The new technology also affects the way we shop and pay in other ways. We do more shopping at a distance, and many shops and restaurants have stopped accepting cash as this entails more work for them in relation to digital alternatives. For us consumers, digital payments are both accessible and attractive.

This development is clearly visible in the statistics. From 1953 to 2019, cash as a percentage of GDP has fallen from almost 10 to just over 1 per cent (Figure 1). Sweden is probably the country in the world with the lowest use of cash now (Figure 2).

Money and how we make payments are changing. Not so very long ago, cash was totally dominant. Now we have money in accounts and we make payments in the form of transfers between accounts. This development has many benefits. But if we do not adapt our money and legislation, it will also entail risks and potential losses. Moreover, the legislation and perhaps also parts of our way of thinking with regard to money and payments are still adapted to a time when everything was on paper. In this commentary, I take a closer look at what the Riksbank is doing, and what I personally think needs to be done, to ensure that we will continue to have a robust, inclusive and efficient payment system in the future.

<sup>1</sup> This commentary is based on a contribution to the conference "Future of Money: Which road" which was organised by the Risk Center at ETH Zurich (Eidgenössische Technische Hochschule Zürich) on 3 September 2020. The contribution and this commentary have been produced together with Carl Andreas Claussen.

**Diagram 1. Cash volume as share of GDP 1951 – 2019**

Source: The Riksbank

## Cash is still needed

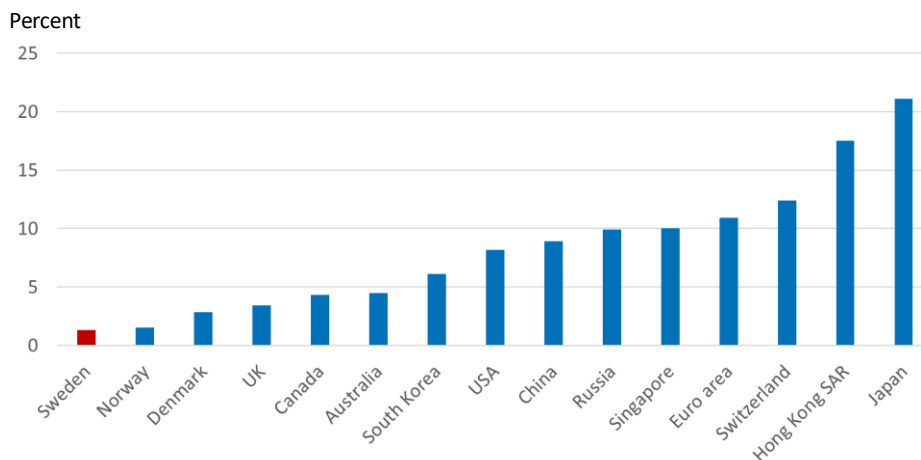
But although cash has its roots in a bygone time, it still fulfils important functions today. For instance, it contributes to our uniform monetary system. In that each krona deposited in a Swedish bank can be exchanged for a krona in the form of cash, a krona in one bank is worth just as much as a krona in another bank. Moreover, cash is emblematic for the Swedish krona. Cash offers a safe alternative to commercial bank money and can be used even if there is no electricity or functioning digital infrastructure. The latter may be important in some geographical areas and in crisis and war. Finally, cash makes it possible for those who for various reasons have difficulty in using digital solutions to make their payments.

If cash continues to decline at the same pace as before, Sweden will in practice be a cashless society within a decade or two. We would lose the functions I just described. It would also mean that we were breaking a long tradition whereby the state or the Riksbank has provided a means of payment for the general public to use. It is important that this does not just occur on its own, that we let it happen without thinking through the consequences.

I do not believe the Riksbank can do very much to stop the development towards a decline in the use of cash. But we should do what we can. For instance, the Riksbank is now working in improving the distribution of cash in line with the proposals by the Riksbank Inquiry and the wishes of the Riksdag.<sup>2</sup>

However, I believe that stronger legal protection for cash could slow down the decline in its use. If it were to be established by law that one was forced to accept cash in Sweden, more of us would probably choose to have cash in our wallets. However, the Riksbank does not have any say in this. It is a task for the Government and the Riksdag. This is why the Riksbank proposed to the Riksdag in April 2019 that a committee with broad-ranging expertise should be tasked with performing a review of the concept of legal tender. In June 2019, the Riksdag forwarded this proposal to the Government, but unfortunately no expert group has yet been appointed.

<sup>2</sup> SOU 2018: 42 Secure access to cash, <https://www.regeringen.se/rattsliga-dokument/statens-offentliga-utredningar/2018/06/sou-201842/> and SOU 2019:46 A new Sveriges Riksbank Act. <https://www.regeringen.se/rattsliga-dokument/statens-offentliga-utredningar/2019/11/sou-201946/>.

**Diagram 2. Cash as a percentage of GDP in a selection of countries. 2018**

Source: The BIS and the ECB

## The e-krona is evolution, not revolution

To deal with the decline in cash, the Riksbank is investigating whether it is possible, and desirable, to issue a digital complement to cash, a so-called e-krona. Just like cash, the e-krona would be issued by the Riksbank and available to the general public. It would work with the existing payment system and be exchangeable one for one for cash or bank money. In that the e-krona would be digital, it would be better adapted to our digital society than cash is, and it could be used in situations where it is not possible to pay with cash now.

The e-krona could ensure that we retain several of the functions of cash in a future where cash is no longer used. For instance, the e-krona could ensure that we have a uniform monetary system. Moreover, the e-krona would, in the same way as cash, be a state alternative to commercial bank money. Depending on how it is designed, the e-krona could be used when there are disruptions to the electricity supply, the digital infrastructure or the banks' payment systems. We could also produce variations that make it easier to pay for those who have difficulty using the current digital solutions.

An e-krona would in this way contribute to reinforcing the Swedish krona as a means of payment in Sweden. This will be particularly important if new payment services based on other currencies, such as Libra, begin to compete with the Swedish krona as a means of payment in Sweden. If we were to find ourselves in a situation where the Swedish krona is no longer regarded as the most important currency alternative for making payments in Sweden, we could ultimately lose the possibility to conduct our own monetary policy and to provide the banks with liquidity in a crisis. This would hamper our possibilities to ensure that payments can be made safely and efficiently and that the krona retains its value.

## E-krona – cash adapted to the current age

Sometimes I hear that an e-krona would fundamentally change the payments market. But I don't think this is the case. As I see it, the e-krona would be a continuation of the system we are used to, where the Riksbank offers safe state money as a complement to private money. Up to now, this has been done with a technology that was effective when communication and bookkeeping took time. With an e-krona, it will be done with modern digital technology adapted to the present day.

It may be useful to provide a small historical retrospective here. During the 19th century, it was common for banks to provide loans in the form of banknotes that the banks themselves printed (Figure 3). These banknotes circulated as a means of payment parallel to the Riksbank's banknotes. After the Riksbank was granted a banknote monopoly in around 1900, the money the banks create has instead been produced in the form of modern commercial bank money, that is, deposits in accounts. This bank money has continued to circulate parallel to the Riksbank's money, and over time they have steadily increased their share of the payments market. If cash were to disappear and not be supplemented with an e-krona, there would *only* be bank money left. As we see it, this would mean a substantial change in relation to the system that has served us well for several hundred years.

Picture 1. 100-krona banknote issued by Stockholms enskilda bank.



Source: The Riksbank

## Pilot project under way

The Riksbank has not yet taken a formal decision on whether or not to issue an e-krona. A decision to issue an e-krona requires a legal basis and political support. According to the European Union's directive on electronic money, the member states shall concede the right for central banks to issue electronic money that can be used by the general public.<sup>3</sup> This directive should be reflected in Swedish law.<sup>4</sup> We have therefore proposed that the expert committee I mentioned earlier should also investigate whether the Riksbank should have the right to issue an e-krona.

To be able to, at this stage, test how an e-krona might look and function, the Riksbank is running a pilot project with Accenture, where we are together constructing a technical platform for the e-krona. The aim is to create, in an isolated test environment, a digital krona that is simple and user-friendly and, at the same time, complies with stringent requirements regarding security and performance.

Sweden is not the only country considering issuing a central bank digital currency. The technological shift entailed by digitalisation affects all countries, albeit at varying speeds. Digital central bank money is therefore something that is being investigated by many central banks around the world. Several central banks, including the ECB and the bank of Japan, have recently published reports that among other things summarize their CBDC work.<sup>5</sup> This work

<sup>3</sup> The directive on electronic money (2009/110/EG): <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32009L0110&from=en>

<sup>4</sup> See also the ECB's opinion on the proposals of the Riksbank Committee, especially Sections 9.2.4 and 9.2.5: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020AB0013&from=EN>

<sup>5</sup> <https://www.ecb.europa.eu/euro/html/digitaleuro.en.html> and [https://www.boj.or.jp/en/announcements/release\\_2020/rel201009e.htm/](https://www.boj.or.jp/en/announcements/release_2020/rel201009e.htm/)

was initially theoretical but many have also started pilot studies and tests to learn more about how it could work in practice.

The Riksbank is taking part in the international work on central bank digital currencies in several areas. For instance, together with several leading central banks we have recently published a report summarising our joint views on how a central bank digital currency can be a tool that helps central banks fulfil their mandates in a better way.<sup>6</sup>

## Further measures needed

At present, only the Swish payment service offers instant account to account payments between banks, but only for a limited type and volume of payments. Bank to bank payments using other services take between three hours and three days. If one of the banks is in another country it can take even longer.

In a world where we can send information around the world in real time, it may appear strange that it takes such a long time and is so difficult to move digital money. Moreover, it can generate unnecessary additional costs and risks, especially for the recipient. My opinion is that payments, both those within Sweden and those between countries, should be as quick as exchanging information in the current digital society. It should be possible to make payments instantly 24 hours a day and to settle them in Riksbank money. Swish payments are not settled in Riksbank money.

## New services make payments faster and safer

The Riksbank is now working on developing a new service, RIX-INST, which should be able to complement the RIX payment system by the year 2022. This service opens for account to account transfers in real time for in principle all of our daily payments and it means that the banks can offer new services where individuals and companies can transfer money between one another within seconds at any time of day. The service will use the Eurosystem's TIPS payment platform.

The Riksbank is also actively investigating how we can facilitate cross-border payments and make them faster, cheaper and more transparent. Payments between Sweden and the euro area are already fairly efficient. Payments to other countries, on the other hand, are costly and can take a long time. To some extent this is because the central banks have not sufficiently adapted their settlement system to international payments.

As part of the work on facilitating cross-border payments, the ECB and the Riksbank are now investigating the possibility of developing the TIPS platform to enable the settlement of payments in real time between European currencies, such as the Swedish krona and the euro. This initiative is taken in the light of the increased European integration and ongoing international work to remedy the lack of fast, efficient and easily available cross-border payments. The survey will include a dialogue with market participants. The Riksbank has also, together with other central banks, surveyed which areas of international payments can be made more efficient and submitted a roadmap to the G20 in the summer.<sup>7</sup>

<sup>6</sup> Central bank digital currencies: foundational principles and core features, Report no. 1 in a series of collaborations from a group of central banks. <https://www.bis.org/publ/othp33.htm>.

<sup>7</sup> Financial Stability Board (2020), "Enhancing Cross-border Payments – Stage 1 assessment report to the G20," <https://www.fsb.org/wp-content/uploads/PO90420-2.pdf>

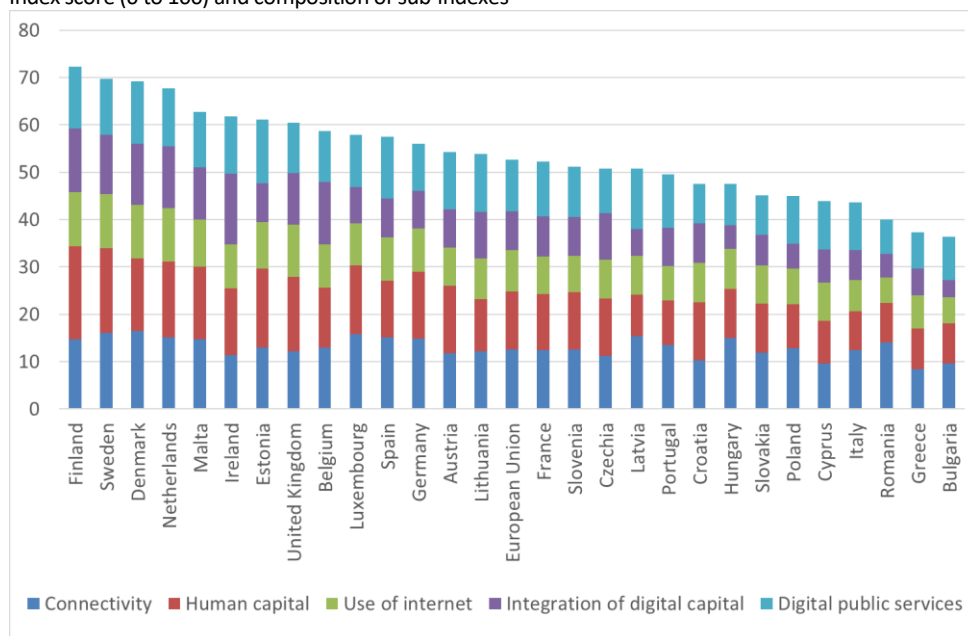
Committee on Payments and Market Infrastructures (2020), "Enhancing cross-border payments: building blocks of a global roadmap-Stage 2 report to the G20," <https://www.bis.org/cpmi/publ/d193.pdf>.

## International cooperation with the BIS and others

The Riksbank is of course also involved in international coordination and networking in various questions related to digitalisation, money and payments. Here I would like to mention in particular that the Bank for International Settlements (BIS) has now decided to establish an innovation hub in Stockholm in a collaboration between the central banks in Denmark, Iceland, Norway and Sweden. This Nordic Innovation Center will work to on more in-depth analysis of technological financial innovation relevant to central banks. The BIS decision to locate the hub in Stockholm is a recognition of the creativeness and technological interest in the Nordic societies (Figure 4), and moreover an important recognition of the forward thinking at, and good collaboration between, our central banks.

**Diagram 3. Digital economy and society index**

Index score (0 to 100) and composition of sub-indexes



Source: European commission

## Government e-identification needed

Digital payment services are dependent on the payers being able to identify themselves in a safe and efficient manner. Many people in Sweden have e-identification already, which mainly consists of BankID, which is the banks' e-identification tool.

I do have some concerns about a sole private actor having such a dominant position on the market for e-identification. One is that the banks usually issue BankID only for their customers. They do not have any obligation to issue an e-identification to all those who want one. There are thus some people who cannot get hold of a BankID. If there were a state issued e-identification tool, more people would be guaranteed access to it. Another concern I have is that the issuer can determine where the identification can be used. For instance, it can choose to exclude competing actors. The fact that only private actors issue e-identification also means that the state does not control the terms for these, and that it is a private actor that determines whether we are who we say we are. In the earlier paper-based

world, we were agreed that the state should determine this and they issued identity documents. This is also how it should be in the digital world.

I therefore support the proposal from the government inquiry on identity documents in 2019 that the number of valid ID documents should be reduced in favour of a national, state-issued ID card with e-identification.<sup>8</sup> Such an ID card would make things easier for new digital payment solutions and would encourage competition on the payments market. It could also reduce the number of payment frauds and contribute to strengthening confidence in the financial system.

## My vision

Let me now summarise and conclude with a few points summarising what I think is needed so the Riksbank can ensure people can pay in a safe and efficient way and that the krona retains its value and is an attractive means of payment. One could call this a vision for the future of money and payments. I believe that a similar vision can work in most countries, and my views are similar in many ways to those now being expressed internationally, for instance by the ECB President.<sup>9</sup>

- There shall be enough cash in case the electronic systems break down.
- There shall be a national, state-issued ID card with e-identification.
- There shall be digital state money as legal tender, an e-krona, issued by the Riksbank.
- It shall be possible to make instant payments in Swedish krona, using state money, 24/7.
- It shall be possible to make instant payments between currencies across borders 24/7.

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<sup>8</sup> SOU: 2019:14. <https://www.regeringen.se/rattsliga-dokument/statens-offentliga-utredningar/2019/03/sou-201914/>. See also the Riksbank's consultation response: <https://www.riksbank.se/globalassets/media/remisser/riksbankens-remissvar/svenska/2019/remissvar-om-betankandet-ett-sakert-statligt-id-kort-med-e-legitimation.pdf>

<sup>9</sup> Christine Lagarde (2020), "Payments in a digital world," speech at Deutsche Bundesbank's on-line conference on banking and payments in the digital world, 10 September.