



SPEECH

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Swedish monetary policy experiences after the global financial crisis: What lessons are there for other countries?*

Thank you for inviting me. It is both inspiring and a privilege to be given the opportunity to speak in more academic contexts, such as this one. Although it was a long time since I was conducting academic research myself, I try to keep updated on what is happening, not only because it is part of the job, but also for my own interest. Now, about ten years on from the global financial crisis, I feel that we are in an unusually interesting phase.

Worldwide economic events like the financial crisis, such as the Great Depression of the 1930s and stagflation in the 1970s, often have a profound effect on both macroeconomic thinking and practical policy. It is possible that something similar will also happen this time, but what a new macroeconomic paradigm will look like and what the policy implications will be is still unclear.¹

For my part, the crisis that affected Sweden and a few other countries in the early 1990s is etched on my mind, not least because, back then, I headed the so-called Bank Support Committee, which managed problems in the Swedish banking sector.² That crisis did not perhaps have such a profound effect on macroeconomic thinking at the global level as it was a more local phenomenon than the latest financial crisis. But for me, it was clear evidence of how costly crises are and how important it is to try to avoid them. It also led to us here in Sweden implementing several important institutional and structural changes to bring more stability and

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¹ For an account of how the Great Recession has influenced macroeconomic thinking and what the implications could be, see, for instance, Blanchard and Summers (2019).

² For a description of the Swedish 1990s crisis, see Lindbeck et al (1994). In conjunction with the crisis and under the leadership of Assar Lindbeck, an economic commission analysed the situation in a short time and proposed guidelines for the formulation of economic policy.

a longer-term perspective to economic policy. This helped us to cope relatively well with the global financial crisis later on.

I do not intend to get into the really deep and fundamental issues of the financial crisis here today, but gladly leave these to research. However, there are lessons and experiences on many different levels and my intention is instead to apply the more unpretentious strategy of “starting in my own backyard”. More specifically, what I intend to do is to review three aspects concerning developments in Sweden since the financial crisis, give my personal reflections on them and indicate what lessons I think there are to learn.

Such a review need not be as self-indulgent and provincial as one might fear, but should be of rather general interest. There are clear links between developments in Sweden and the current international debate on monetary policy. Furthermore, Sweden has for some reason often been one of the first countries to face various new situations that have had to be dealt with. And even though other countries have yet to encounter the challenges already faced by the Swedish economy, they may have to do so sooner or later.³

The three aspects I would like to discuss are the following:

- The Riksbank is one of relatively few central banks that have explicitly used the policy rate to try to counteract the build-up of financial imbalances – a policy that is usually called “leaning against the wind”. It is probably the only central bank that has had to abandon this policy, temporarily at least, in order to focus fully on the inflation target.
- The expansionary policy that the Riksbank has had to conduct in order to bring inflation back to the target has, like for many others, involved active use of the balance sheet and major communicative challenges. My impression is that the debate over monetary policy has been slightly more lively in Sweden than in many other inflation-targeting countries.
- A development of a slightly different kind, but that is important enough to warrant discussion here, is that the use of cash is declining more rapidly and today is lower in Sweden than in any other country. How have we reasoned on this so far?

I will go through each of these points, but let me first add that I am expressing my personal reflections here, well aware of the fact that it can be difficult from a distance to reflect over events when you are right in the middle of them. It is possible that my colleagues in the Executive Board of the Riksbank agree with much of what I say, but it may also be the case that they have a different opinion in some issues.

³ It may be worth noting that Sweden, together with countries like Australia, New Zealand, Canada and Norway, belongs to a group of small open economies with floating exchange rates and inflation targets that have relatively similar challenges and problems: Via free capital movement, we have imported low real interest rates, there is downward pressure on inflation via, among other things, globalisation, private debt is high and there are problems on the housing market.

When you have to choose between “leaning against the wind” and the inflation target

One of the conclusions from the global financial crisis is that financial factors and conditions must be given higher priority in economic analysis and be considered to a greater extent when designing economic policy. Above all, the crisis was a signal that greater effort must be made to avoid financial imbalances causing problems on the macro level. The most concrete expression from this was the emergence of macroprudential policy, which, in contrast to traditional supervision of individual banks and financial institutions, focuses on the entire financial system and the economy as a whole.⁴

Some of the discussion has been about the extent to which monetary policy should be used to counteract the build-up of financial imbalances, for example a substantial and sustained credit expansion. A monetary policy that “leans against the wind” may contribute to greater stability in the longer term, as the purpose of trying to prevent financial imbalances from building up is that they should not cause problems with financial or macroeconomic stability at some point in the future.

Most people agree that monetary policy should not have the *main responsibility* for preventing financial imbalances, but that this should rest on micro- and macroprudential policy and a well-designed regulatory framework. A central issue is, however, what support to prudential policy and the regulatory framework monetary policy needs to provide so that they can fulfil their tasks.⁵ I do not believe it is possible to completely ignore financial stability when conducting monetary policy.

Different views in research and among central banks

There is on the one hand a growing research-related literature on whether central banks should “lean against the wind” – or conduct “prudential monetary policy”, as it is sometimes called and which perhaps is a more telling term.⁶ There is on the other hand a more practical policy discussion. I do not intend to go into the research literature, but just note that it entails investigating a number of effects and trying to weight them against each other: How effective the policy rate is in counteracting the build-up of financial imbalances, how effective other tools are and for how long they are effective – that is, how easily they can be circumvented⁷, how much of a negative impact a higher policy rate has on the rest of the

⁴ It is worth pointing out that in Sweden the boundary between macroprudential policy and supervision of individual banks, microprudential policy, has never been particularly distinct because of the market structure we have, with a small number of large, dominant banks. If the stability of one of these banks is threatened, it also entails a threat to the stability of the financial system as a whole. To this extent, one can say that we in Sweden have actually been conducting macroprudential analysis for quite a long time.

⁵ Sometimes, the problem is turned round and asks whether macroprudential policy should help stabilise the business cycle. This is something I am sceptical of.

⁶ Caballero and Simsek (2019).

⁷ Conversely, a major challenge for macroprudential policy is how to prevent “leakage” from regulations in a particular sector to other sectors not covered by the regulations. Macroprudential policy measures can be seen as a shadow interest rate for a particular sector of the economy, which can be related to the policy rate set in monetary policy. The tendency to leak will of course be higher the greater the tension is between the policy rate and the shadow interest rate that ensues from the regulations and the longer the interest rate differential lasts.

economy and how great the cost is of the crisis that is possibly avoided or mitigated. To investigate this, theoretical models and simulations in quantified models have been used.⁸

It is perhaps not particularly surprising that whether it is considered a good or a bad idea to use monetary policy to counteract financial imbalances largely depends on the assumptions made and how the model is designed. My interpretation of the literature is that it is not leaning clearly in either direction.⁹

Taking a step away from the research literature, what does it look like in practice? As academic research has not come to any clear conclusion, it is perhaps not so surprising that central banks have slightly different opinions. Many central banks, for example the US Federal Reserve, seem sceptical to using the policy rate to counteract financial imbalances, other than possibly as an absolutely last resort, if nothing else proves effective.¹⁰ But there are also central banks that have made a “leaning against the wind” policy into an integrated part of the monetary policy set-up. Perhaps the clearest current example is Norges Bank. Norges Bank’s remit refers, on the one hand, to regulations and the supervision of financial institutions being the most important means of preventing shocks in the financial system. But it also says that: “If there are signs that financial imbalances are building up, consideration of stable production and employment in some situations may lead to the interest rate being held slightly higher than it otherwise would have been”.¹¹

Why the Riksbank stopped “leaning against the wind”

Up until a few years ago, Sweden conducted a similar policy to Norway. A development that worried us, and that we thought we needed to deal with, was that household debt and housing prices had been rising rather rapidly for some time. Even though the policy we conducted was mainly governed by traditional monetary policy motives, that is, the expected development of economic activity and inflation over the next few years, the risks associated with the development of household debt and housing prices were part of our assessment. To help dampen this development, the repo rate was therefore set slightly higher than would otherwise have been the case. There was thus an element of “leaning against the wind” in the policy, especially during the years after the financial crisis.¹² However, these fears also influenced the policy before the crisis, something I talked about at the conference in Jackson Hole in 2007.¹³

⁸ For a review of the literature, see, for instance, Adrian and Liang (2018). Examples of studies saying that monetary policy should not “lean against the wind” include the International Monetary Fund (2015), Svensson (2017) and Kockerols and Kok (2019), while Filardo and Rungcharoenkitkul (2016, Gerdrup et al. (2017)) and Gourio, Kashyap and Sim (2018) and Caballero and Simsek (2019) find reasons for monetary policy to do so.

⁹ Adrian and Liang (2018) also find that more research is required to clarify the role monetary policy should have when it comes to counteracting the build-up of financial imbalances.

¹⁰ See, for instance, Yellen (2014), Brainard (2017) and Quarles (2019).

¹¹ <https://www.norges-bank.no/en/topics/Monetary-policy/Mandate-monetary-policy/>

¹² See, for instance, Ingves (2012) and Jansson (2013). For a rebuttal of the criticism that the Riksbank “leaned against the wind” very substantially and was the main reason why the Riksbank increased the interest rate in 2010-2011 in the first place, see, for instance, Jansson (2014).

¹³ Ingves (2007). See also Nyberg (2005), and Heikensten (2008). Heikensten (2008), writes: “With house prices increasing drastically, risks for the real economy have been perceived to be bigger. On a few occasions in 2004-05 the Riksbank did for that reason not follow a strict inflation-targeting rule. We “leaned against the wind”, in

So what happened and why did we stop “leaning against the wind”? A few years after the financial crisis, it was clear that inflation had not risen in the way the Riksbank had anticipated, but instead was surprisingly low. During the first half of 2013, for example, the average of Swedish forecasters expected inflation to reach around 1.5 per cent in 2014. The outcome was almost one percentage point lower, that is, one and a half percentage points below the target.

The period during which inflation undershot the target thereby became gradually more prolonged. In mid-2014, inflation had been continuously below target since 2010, and periodically quite far below (see Figure 1). Once inflation had undershot the target for a while, inflation expectations also began to fall, including long-term expectations. Thus, economic agents did not expect inflation to meet the target even five years ahead (see Figure 2). In wage formation as well, there were signs that the inflation target was beginning to be of less significance.

In other words, a risk began to build up that the role of the inflation target as benchmark for price-setting and wage formation would begin to weaken – that the nominal anchor that has been an important part of the favourable developments in Sweden since the early-1990s crisis would begin to slip. As the basic premise of inflation targeting policy is to anchor long-term inflation expectations at the target, this development made it urgent to bring inflation back up towards 2 per cent fairly rapidly. It was therefore clear that the Riksbank needed to focus entirely on the task of maintaining confidence in the inflation target. Consequently, there was no longer any scope for conducting a policy that “leans against the wind”. As a result, the Riksbank cut the policy rate quite rapidly down to –0.50 per cent and also began to purchase substantial volumes of government bonds, particularly in relation to the size of the sovereign debt.

This of course did not mean that we ceased to concern ourselves with the problems associated with debt and housing prices. Throughout this entire period, we have highlighted this development in our communication as a significant risk in the Swedish economy that needs to be dealt with but that we do not have the scope to address under the prevailing circumstances.

I would say that it is largely differences in confidence in the inflation target that explain why Norway, for example, has been able to conduct a different monetary policy to the one pursued in Sweden after the financial crisis. Confidence in the target does not seem to have been threatened in the same way in Norway as in Sweden. But when it *is* threatened, I think it is very difficult to refrain from redirecting the policy and prioritising the inflation target.

Naturally to prioritise the inflation target when confidence in it is threatened

As far as I am aware, this confidence effect has so far not been considered very much in the research, if at all. The costs of “leaning against the wind” are typically assumed to arise in the short term, in the form of lower inflation and growth. But

the sense that we did not take rates down as quickly as we could have done considering the outlook for inflation alone.”

it might also be the case that confidence in the inflation target risks being lost in special circumstances. Re-establishing it may require a prolonged and costly process, which should also be taken into account. It is such fears that largely explain the policy conducted by the Riksbank in recent years.

Does a policy that “leans against the wind” *require* there to be confidence in the inflation target? It is probably possible to construct theoretical and quantified examples in which the recession that is prevented or mitigated by “leaning against the wind” is sufficiently long and deep for it to be worth taking the cost of losing, and having to re-establish, confidence in the inflation target. But in practice, it is very difficult to imagine how a central bank, seeing that confidence in the inflation target is being eroded, could stick to a tighter policy and risk inflation expectations staying permanently low in order to *perhaps* prevent a financial crisis sometime in the future.

I am not saying that this is a reason to *never* conduct a policy that “leans against the wind”. On the contrary, I am personally in favour of the idea as such, and can well imagine formally integrating such a policy into the monetary policy set-up, in the way it has been done in Norway. But one can argue a policy that “leans against the wind” is in practice a “fair-weather” policy – windy but sunny, in other words. Only as long as confidence in the inflation target is intact, there is scope to use monetary policy to counteract financial imbalances. I would say that this is one of the lessons worth highlighting from developments in Sweden after the financial crisis.

An expansionary policy with communicative challenges

So how have things gone since? The more expansionary policy gradually started to have an effect. Growth rose and employment increased. Inflation started to rise in 2015 and in 2017 returned to the inflation target of 2 per cent. Since then, it has remained close to target, although most recently it has decreased slightly. Inflation expectations also turned upwards, both short-term and long-term (Figure 3). Furthermore, developments in Sweden have been generally positive in an international perspective, regarding both employment and growth (see Figure 4).

Intensive debate despite good target attainment

The fact that macroeconomic developments have largely been favourable for some time does not mean that everything is hunky-dory, which one might have expected. As I have already indicated, the expansionary policy has given rise to intensive debate. Perhaps the debate has been livelier and monetary policy more brought into question than in many other countries with similar frameworks. A comparison could be the debate in the United States. But in contrast to in the US, it has not been a question in Sweden of political pressure to conduct a more expansionary policy but rather about pressure from opinion-makers and debaters to conduct a *less* expansionary policy.

Part of the explanation might be that there has been a relatively large discrepancy in Sweden between, on the one hand, the policy required to maintain confidence in the inflation target and, on the other, the policy that would have been justified by developments in the economy otherwise. If the Riksbank had not needed to take confidence in the inflation target into consideration, but only the developments in the real economy with a positive output gap and a strong employment trend, the policy would most probably have been less expansionary. Certainly, other central banks too have kept policy rates negative for a long time, including the European Central Bank. This has caused some criticism in certain euro countries, but the expansionary policy has been motivated not only by low inflation but also by relatively weak developments in the real economy in the euro area as a whole.

Effects on the housing market and the exchange rate stumbling blocks

A few different things have bubbled up to the surface in the Swedish debate but there have been two main themes, as I see it. One is connected to what I was just talking about, that is that the Riksbank, about five years ago, had to choose between continuing to “lean against the wind” and maintaining confidence in the inflation target.

The more expansionary policy that the Riksbank then began to conduct of course did not make things easier, but instead stimulated the increase in debt and housing prices further. However, the Swedish Financial Supervisory Authority, Finansinspektionen, which has had the responsibility for macroprudential policy since 2014, has taken measures and as a result of this, and possible for other reasons, prices have slowed (see Figure 5). Although lending to households has continued to increase, this has dampened criticism against the effects of the expansionary policy on debt and housing prices. A gradual slowdown in the rate of increase in debt accumulation has probably also played a role.

Recently, the discussion has instead focused on the development of the Swedish krona. The expansionary monetary policy has, via the normal exchange rate channel, contributed to a depreciation of the krona.

But in countries with inflation targets, like Sweden, it is the inflation target that should anchor long-term expectations while the exchange rate will vary. In recent years, the krona has developed in a similar way as the currencies of other small open economies, although it has been relative weak very recently (see Figure 6). Neither is there reason to believe that Swedish inflation relative to abroad will cause a *trend* depreciation of the krona exchange rate, as virtually all countries in the world have an inflation target of more or less exactly 2 per cent, just like in Sweden.

This is of course in itself no guarantee that we will not see trends in the krona exchange rate. Such trends can namely also depend on the fact that the *real* exchange rate, that is, the nominal exchange rate adjusted for relative price levels between Sweden and other countries, is not necessarily constant. If price devel-

opments are approximately the same as abroad, the adjustment of the real exchange rate will occur via trends in the nominal exchange rate. Importantly though, trends in the real exchange rate are determined by structural factors, such as differences in productivity growth among countries.

Challenges in communication

This is how the debate has been framed. One observation is that the monetary policy conducted by the Riksbank has been the subject of lively discussion, despite its sole purpose having been to fulfil the remit the bank has from the Swedish Parliament, the Riksdag. Furthermore, in recent years the Riksbank has managed its remit well, from a purely objective perspective.

I draw two conclusions from this. First, the debate seems to be about the remit itself, even if this is not always apparent. It seems people want the Riksbank to do something other than what it has been tasked to do. Second, maybe we at the Riksbank have not managed to communicate well enough why we have the remit we have, why we need to conduct the policy we have conducted and what the benefits are of having an inflation target of 2 per cent compared with other monetary policy objectives.

The fact that the communication has faced challenges is in a way natural. Once a monetary policy framework has been in force for long enough, the benefits of it tend no longer to be so obvious. In addition, if developments have been favourable, as has been the case since inflation targeting was introduced, it is easy for demands and expectations to rise. It is also easy to place greater focus on the drawbacks, which exist in all frameworks. For example, it is not so difficult to communicate that high and variable inflation is bad, as was the case when inflation targeting was introduced in the early 1990s. But when memories of those problems have faded, it is not as easy to convey that an inflation target is also supposed to prevent inflation being too *low*, that is, the importance of there not only being common expectations in society as to how much prices and wages will rise, but also that these expectations are anchored far enough above zero. Although this argument – that the inflation target should be sufficiently high – is crucial, it is after all also relatively abstract.

There are above all two relationships that I think make it important to maintain confidence in the inflation target of 2 per cent – which is what our policy in recent years has aimed to do – and which indicate that the target should not be lower. One is that the conditions for wage formation to effectively allocate resources in the economy can deteriorate when average inflation is too low. The reason is that it has proved difficult in practice to lower nominal wages. If inflation is low and nominal wages cannot be lowered, it becomes difficult to adjust real wages among different professions, companies and sectors. This can ultimately bring about both higher unemployment and poorer productivity growth in the economy. These problems can be mitigated if there is some inflation.

Another advantage of a target of 2 per cent, which has been particularly apparent in recent years, is that a very low average rate of inflation would make it more difficult for monetary policy to counteract recessions. If inflation on average is very low in a world of low real interest rates, like today, the average nominal interest

rate will also be very low. The lower the interest rate is in normal conditions, the less scope there is to lower it before it reaches its lower bound. It will thus become more difficult to counteract future economic downturns with interest rate cuts. Thus, if you do not like negative interest rates, you should not advocate a lower inflation target, as that would involve the repo rate needing to be negative more often and for longer periods. There is a widespread international discussion on whether a target of 2 per cent, which most developed countries have now, really provides sufficient scope to conduct a monetary policy that is as expansionary as it sometimes needs to be.¹⁴

But in day-to-day monetary policy communication, these relatively abstract arguments about the benefits of a credible and sufficiently high inflation target have to compete with observations that are significantly more concrete for economic agents: that the policy rate has been negative for rather a long time – in itself an exceptional circumstance historically – in a situation where output and employment have generally developed well, and the expansionary policy has helped lending continue to rise and led to a depreciation of the exchange rate.

Regular overviews of the remit important for understanding and legitimacy

What lessons can be learnt from this? To begin with, I think that it is quite a useful observation that a central bank with an inflation target may sometimes have to conduct a policy that is so exceptional as to bring the policy's legitimacy into question, despite the aim of it being to fulfil the remit that the central bank has been instructed to pursue. Bearing in mind the current international economic environment with low real interest rates and powers that are having a restraining effect on inflation, this is something that an increasing number of countries may experience in the period ahead.

A lesson to be learnt from this is, in my view, that regular public reviews of the monetary policy remit as such are a good thing, so that it becomes clear what the central bank's task actually is and that it only does what it is intended to do. This would contribute to both better understanding and greater legitimacy for the policy conducted by the central bank.

It should be added here that the Riksbank's *monetary policy* is evaluated every year, that is, how the Riksbank has *performed* its remit. The Riksdag Committee on Finance performs an annual review based on background material such as the "Account of monetary policy", a report compiled and published by the Riksbank.¹⁵ In addition, the Committee on Finance occasionally hires external experts to review Swedish monetary policy. So far three such reviews have been conducted: By Francesco Giavazzi and Frederic Mishkin for the period 1995-2005, by Charles

¹⁴ Advocates of a higher inflation target include Blanchard et al. (2013), Ball (2014), Krugman (2014), Rosengren (2015) and Yates (2019).

¹⁵ See Sveriges Riksdag (2018) and Sveriges Riksbank (2018a) for the latest versions of these publications.

Goodhart and Jean-Charles Rochet for the period 2005-2010 and by Marvin Goodfriend and Mervyn King for the period 2010-2015.¹⁶ Although these external reviews have sometimes touched upon issues related to the policy objective, their main purpose has been to evaluate the monetary policy conducted, based on the *existing* policy objective. These reviews are undoubtedly valuable and fulfil their purpose effectively, but it is something else I have in mind here.

Canada has chosen a system with reviews of the central bank's remit every fifth year.¹⁷ The latest review from 2016 analysed, among other things, whether the level of the inflation target was the most appropriate.¹⁸ It is possible that the interval between the reviews could also be slightly longer, as monetary policy objectives probably have quite a long "durability" and perhaps do not need to be reviewed quite so often.

Such regular reviews would probably not lead to substantial changes over time, which has not been the case in Canada either. But now and then, the conclusion may be that a change to the monetary policy objective would be preferable, which would of course be entirely appropriate. The important thing is that the remit is formulated via objective and scientific examination and scrutiny and not determined by short-term political motives or subjective opinion moulding in the media.

Before any system of regular reviews is introduced, legal aspects must of course be considered. As far as Sweden is concerned, this means, for example, that both the remit and its terms must be compatible with EU law, which states, among other things, that the central bank shall maintain price stability. Although this puts restrictions on the possible remits of central banks, there are nevertheless some degrees of freedom as regards the exact policy formulation. That the central bank should aim at maintaining price stability defined in one way or another is of course only natural. The terms of the reviews must also consider that the central bank shall perform its remit without influence from the Member State's parliament, government or any other body.

If Sweden had had a system of recurrent reviews of the policy objective, the at times almost surprisingly heated debate over recent years would probably have been more balanced. The issues raised in the debate had then been publicly examined in these reviews in an objective and scientific way, and it would have been clear that the Riksbank is not "running its own race", decoupled from its remit. To motivate the policy conducted by a central bank, it is of course significantly easier to rely on a review of the remit from at most just a few years ago than, as in Sweden's case, on a system that was determined more than 25 years ago and whose status and meaning today seem unclear to many.

I think that a procedure of regular reviews of the remit could also be a way of counteracting the forces in many parts of the world looking to make central banks

¹⁶ Giavazzi and Mishkin (2006), Goodhart and Rochet (2011) and Goodfriend and King (2016).

¹⁷ James Bullard, Head of the Federal Reserve Bank of St. Louis, has expressed similar thoughts, see Federal Reserve Bank of St. Louis (2019).

¹⁸ Bank of Canada (2016).

less independent. It would make it clearer that central banks act based on the remit they have and do not just do as they please, which seems not to be such an unusual opinion these days.

The declining use of cash

So let me go on to my third point concerning something entirely different; namely the Riksbank's role as the guarantor of the payment system and the silent, yet sweeping, revolution taking place on the Swedish payment market.

Very seldom, perhaps just once a century or so, fundamental changes take place in a country's payment system. These changes can sometimes be just as important as the changes in macroeconomic thinking that seem to occur at intervals of a few decades or so.

Massive changes have of course taken place in the payment system through the centuries. But if we just look at the last two hundred years or so and the Riksbank's role as the supplier of banknotes and coins, there are a couple of milestones worth noting. Both concern efforts to guarantee the Riksbank's monopoly on providing the country with cash by way of legislation.¹⁹

In 1809, Sweden's payment system was in a state of major disorder.²⁰ To finance a war 20 years earlier, large volumes of so-called "riksgäld" notes, paper money with no underlying coverage, were issued alongside the banknotes from the Riksbank (then named the Bank of the Estates of the Realm). In addition to creating inflation, this meant that Sweden had two parallel coin systems that created uncertainty, gave rise to speculation and led to personal losses.²¹ The new Instrument of Government in 1809, which also gave the government and the Riksdag a greater role in relation to the Crown, therefore stated that the Riksdag would have the sole right to issue banknotes as legal tender via the Riksbank.

About one hundred years later, in 1904, the so-called banknote monopoly came into force, which led (again) to the Riksbank obtaining the sole right to issue cash. The competition this time came from the savings and commercial banks that emerged during the 1800s and that had begun issuing their own banknotes.²² The banknote monopoly can be seen as an expression of the fact that banks and the Riksbank started to refine their roles at this time. The Riksbank ceded regular banking operations to the emerging banking sector, and started itself to take on

¹⁹ The reasoning below strictly applies only to banknotes. The right to manufacture and issue coins was transferred from the government to the Riksbank as late as in 1986.

²⁰ 1809 was also a critical year in Sweden for many other reasons. The King had been deposed in a coup d'état, the country was involved in three wars and had just lost the eastern part of its kingdom, Finland, to Russia. It was important to install a new monarch and have a new Instrument of Government in place as quickly as possible, not least in order to be able to negotiate urgent peace agreements. For a more detailed review of developments at this time, see for instance Petri (2017).

²¹ Personal losses on riksgäld notes were a contributory cause of the king who initiated the system, Gustav III, being murdered in 1792, see for instance Wetterberg (2009).

²² That this was able to happen despite the provisions in the Instrument of Government from 1809 seems to have been due partly to the need to promote the emergence of a Swedish banking system, and partly to banknotes not formally being valid as legal tender, despite them in practice being so; see Sveriges Riksdag (1897), p. 10.

more the role of central bank – the bank of the banks rather than of the general public – and guarantor of the monetary and payment system.²³

The Riksbank is considering an e-krona

A little more than 100 years later, the question of the Riksbank's issuance of cash has once again become topical, but for an entirely different reason. This time, it is not a question of other competing with the Riksbank on banknote issuance, but of the general public's use of cash having declined at a very rapid rate, so much so that it is now lower than in any other country (see Figure 7). This development is due to a combination of banks introducing new technology that is cheaper than handling cash and of most people in Sweden perceiving these solutions to be more convenient. But a drawback to this development is that if it continues, Sweden may find itself in a few years' time in a position where cash is no longer generally accepted by households and retailers. Technological development may in other words make physical banknotes irrelevant.

This raises a number of fundamental issues about the payment system which we have not previously needed to consider. If cash were to be completely phased out within a not-too-distant future, there would, basically for the first time in modern Swedish history, no longer be a means of payment whose value is guaranteed by the state, via the Riksbank. We would therefore face a situation where all means of payment available to the general public are issued by private actors, on a payment market that is highly concentrated. This could make it more difficult for the Riksbank to perform its remit of promoting a safe and efficient payment system.

In light of this, the Riksbank has been looking into the scope for issuing a new form of digital cash, a so-called e-krona, for some time. In this age of digitalisation, with several already existing so-called cryptocurrencies and others, such as Libra, on the cusp of being introduced, the Riksbank is far from the only central bank looking at the issue of digital central bank money. But as cash use is declining so rapidly in Sweden, there is more pressure on us than on other countries to come to a conclusion.

The Riksbank has presented its work on the e-krona in two reports.²⁴ There are naturally a large number of aspects to consider – economic, legal, technical and even almost philosophical. I would like to say a few words here about how an e-krona might affect the scope for conducting monetary policy.²⁵

Effects on monetary policy depend on the design

The effects differ quite considerably depending on whether an e-krona would be interest-bearing or not, that is, if an interest rate could be linked to holdings of e-krona. A non-interest-bearing e-krona would be more like present-day cash and would be less of change compared to today, but the monetary policy consequences would not necessarily be insignificant.

²³ For a more detailed review, see Söderberg (2018).

²⁴ Sveriges Riksbank (2017, 2018b). For a current progress report on the e-krona project, see Söderberg (2019).

²⁵ For a more detailed review of this, see Armelius et al. (2018).

For example, the Riksbank would probably no longer be able to cut the policy rate to the levels of recent years. Previously, it was generally assumed that central banks would not be able to cut their rates below zero. The reason was that the economic agents – households, companies, banks and financial institutions – were then expected to start holding large amounts of cash as the interest rate for it is zero and therefore higher than the negative rate. Today we know that central bank policy rates can be negative without there being a massive run on cash. One explanation is that holding cash is associated with cost and inconvenience and there is therefore a willingness to accept a certain cost to avoid doing so. But an e-krona would change the prerequisites. In contrast to physical cash, the e-krona would not require agents to invest in ways of storing, transporting and insuring. This means that the lower bound for the policy rate would increase, probably to zero, that is, where it was previously assumed to be. In this sense, the e-krona could restrict monetary policy and make it less effective.

The situation would be entirely different if the e-krona was to be interest-bearing. The zero bound would then no longer constitute a restriction as the yield of the e-krona itself could be negative. Furthermore, if physical cash were to be entirely phased out, the policy rate could instead be taken much further into negative territory than today.²⁶ Potentially, therefore, monetary policy would become *more* effective, even though it would probably be met by significant resistance from economic agents. This resistance is already substantial to what are currently more modest negative interest rate levels.

But with an interest-bearing e-krona, we would also be in a completely different world. The interest rate on the e-krona, for example, would become a new regular monetary policy instrument. Potentially, therefore, it would involve a change on many different levels. However, with the current legislation, it is not clear whether it is even possible for the Riksbank to introduce an interest-bearing e-krona.

Public inquiry required for a decision

It is clear just from this short review that the introduction of an e-krona could have major consequences for both monetary policy and society as a whole. On the other hand, as I have also pointed out, it would involve a major change in a historical perspective if the Riksbank no longer issued *any* state-backed means of payment that can be held by the general public.

Considering how economically important the issue is, the Riksbank cannot take the decision on its own as to whether an e-krona should be introduced and, if so, in what form. It is a decision that must have substantial political support and where parallels can be drawn with the changes in the payment system in 1809 and 1904 that I mentioned earlier.

²⁶ Some economists see a more negative interest rate as the best solution to create room for manoeuvre for monetary policy in a world of very low neutral interest rates, like today – better than, for example, increasing central bank inflation targets. This, it is thought, could work even if there is still physical cash by creating an exchange rate between physical cash and e-money and steering it, see for instance Rogoff (2017) and Lilley and Rogoff (2019).

In May this year, the Riksbank therefore submitted a petition to the Riksdag on the need for a public inquiry into the future payment market. In June, the Riksdag supported the proposal and called on the government to appoint as soon as possible an inquiry into the consequences for the payment market of digitalisation and the declining use of cash, and the roles of the state and the private sector on this market. The Government Offices are currently in the process of drafting the inquiry's terms of reference and reviewing its staffing. The inquiry will probably be able to start work in early 2020.

So far, there are perhaps not so many lessons to be learnt from this as we are very much in the middle of an ongoing process. One possible lesson is that it is not just crises and macroeconomic paradigm shifts that require analysis, innovation and adaptability at a central bank. Changes in the payment system can also do so, even if they occur less frequently.

Another lesson is that the payment habits of the general public can change very quickly once the prerequisites are in place. In just under ten years, dramatic developments have taken place in the way Swedish people pay for things. Between 2010 and 2018, the proportion of Swedes who used cash for their last transaction decreased from about 40 per cent to 13 per cent, and it will probably continue to fall.

My vision of the Swedish payment system in the future

Before I round off, allow me to elaborate on an issue that I am particularly passionate about. It is obvious that ways of paying for things both in Sweden and abroad are undergoing rapid transformation. It is not merely a question of a reduction in cash use. Another aspect is that demand for instant payments continues to grow, that is, payments that occur in real time and can be made around the clock.²⁷ When the current payment systems emerged in the late 1800s and the early 1900s, everything was on paper, which put a limit on how quickly payments could be made. In the future, we must assume that nothing will be on paper. There is therefore reason for states and central banks to consider what monetary and payment systems should look like in the future and what role they should play.

The vision I have of what the Swedish payment system will look like in the future can be described as follows. There should be a legal definition of what constitutes electronic legal tender and the e-krona, issued by the state via the Riksbank, should be such legal tender. It should also be possible 24/7/365 to make payments in real time in e-krona and in addition make at least smaller transactions between currencies. There should be an electronic state ID document that also defines who a person is in a legal sense, and if electronic systems were to fail, there must, as a contingency measure, be a sufficient amount of physical banknotes in different parts of the country. But, as I said, this is a vision and nothing that lies just around the corner.

²⁷ Among other things, this has led the European Central Bank (ECB) to develop a pan-European system for instant payments, Target Instant Payment Settlement (TIPS).

If history provides us with any guidance, I do not believe it is appropriate to completely cede the design of the monetary system to the private sector. Furthermore, a design of “fiat money” and an inflation target require some form of legislation.

To sum up

Let me round off with a short summary. I have gone through three aspects of developments in Sweden since the financial crisis: That the Riksbank is probably the only central bank that, at least for the time being, has needed to abandon the strategy of “leaning against the wind” due to weakening confidence in the inflation target; that the policy we have had to conduct to bring inflation back to target has been lively debated, despite its aim merely being to fulfil the Riksbank’s de facto remit; and that cash use is declining more rapidly in Sweden and today is lower than in any other country.

As regards the first aspect, I noted that, although I myself think that a policy of “leaning against the wind” can very well be justified under normal circumstances, it is also a policy that in practice is difficult to maintain when confidence in the inflation target is under threat.

Concerning the intensive debate about the Riksbank’s policy, my conclusion was that it can be useful to have a system where the monetary policy remit and policy objective are reviewed at regular intervals, as is currently the case in for example Canada. This would create better understanding and legitimacy for the monetary policy conducted and clarify that the central bank actually only performs the remit it has been given. I also believe it can be a way to counteract the forces that seem to exist in many parts of the world to make central banks less independent.

As regards the decline in cash use, there are not so many conclusions to draw as yet. What we can say for certain is that an e-krona would affect the conditions for monetary policy quite substantially, more or less regardless of how it is designed. It is wise that many countries are examining the scope for introducing e-money, as one of the lessons that after all can be learnt from developments in Sweden is that cash use in society can decline very rapidly.

These were the experiences and reflections I wanted to share with you. Perhaps the conclusions I draw are not that spectacular. But I would like to believe that the observations and experiences that we practitioners and economic policy decision-makers make in our day jobs, so to speak, slowly but surely help to enhance the level of our collective knowledge. My hope is that this could at least be a small contribution to this development.

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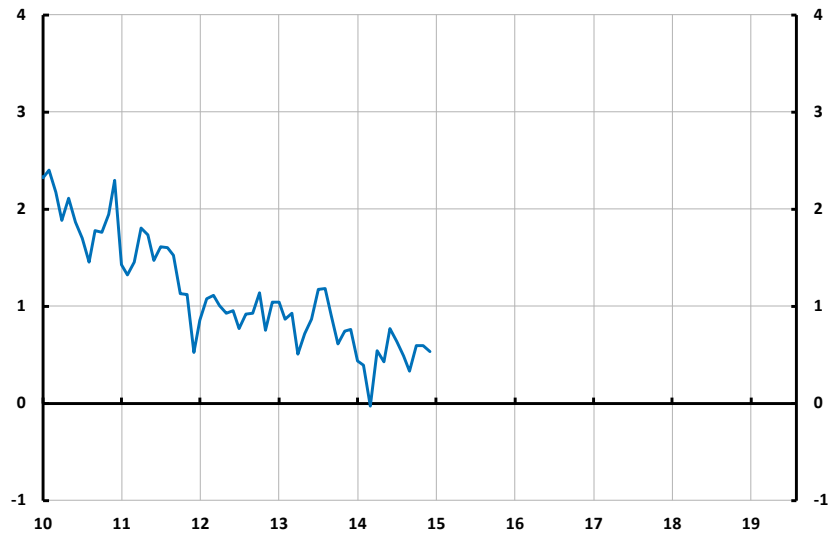
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Figure 1: Weak development of inflation...

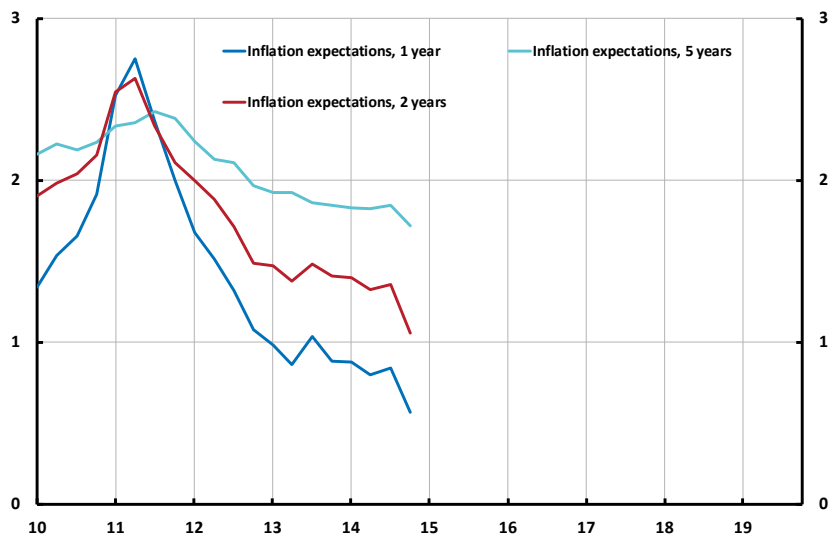
KPIF, annual percentage change.



Sources: Statistics Sweden and the Riksbank.

Figure 2: ...and falling inflation expectations

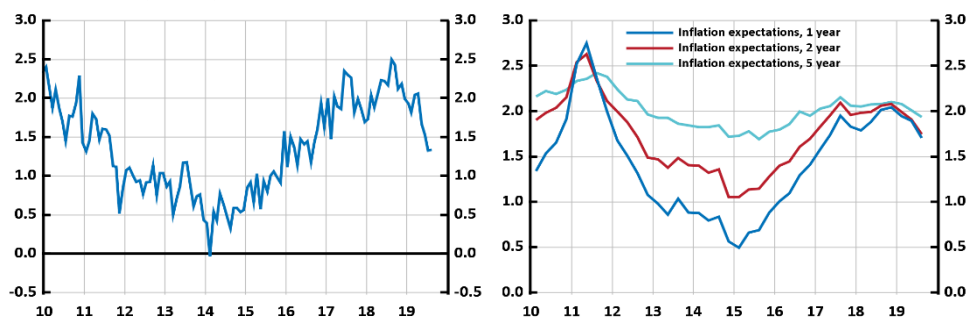
Annual percentage change.



Sources: Prospera and the Riksbank.

Figure 3: Inflation back on target and expectations anchored

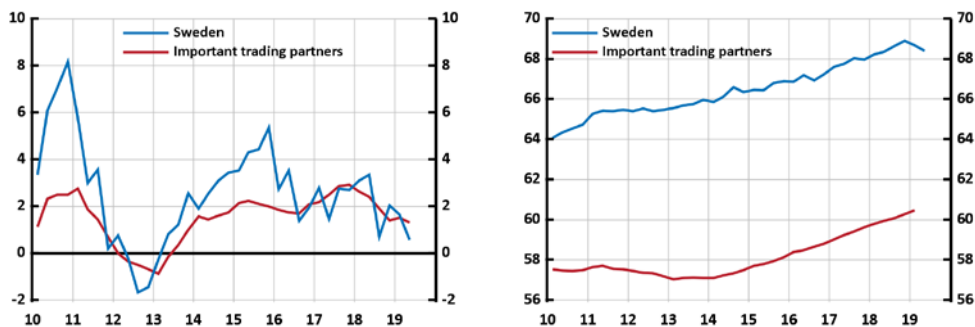
Annual percentage change.



Sources: Prospera, Statistics Sweden and the Riksbank.

Figure 4: Good development of GDP and employment

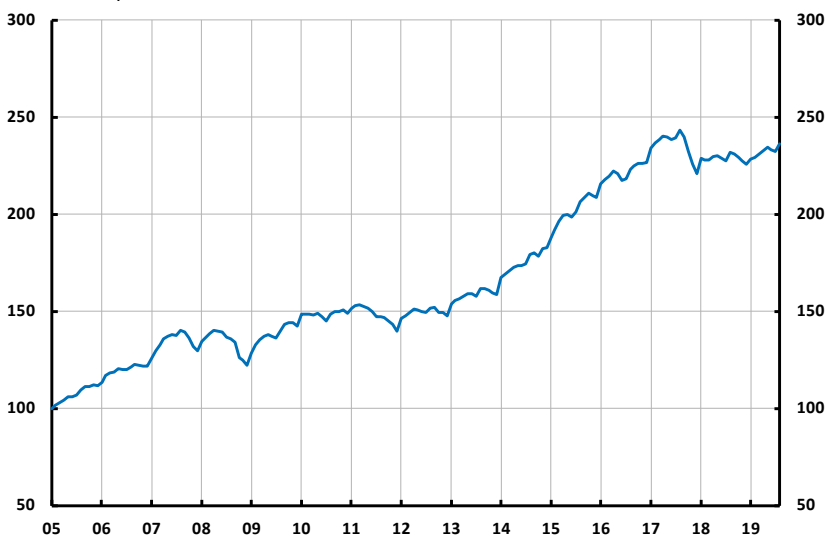
Left: annual percentage change. Right: Percent of population aged 15-74.



Sources: Statistics Sweden and the Riksbank.

Figure 5: Calmer developments on the housing market

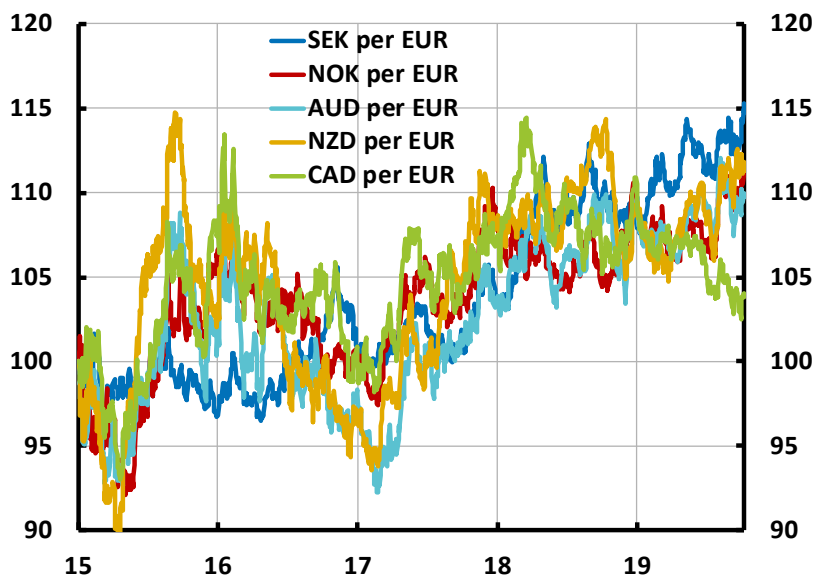
Index, January 2005 = 100.



Sources: Valueguard and the Riksbank.

Figure 6: Similar developments of currencies in small open economies

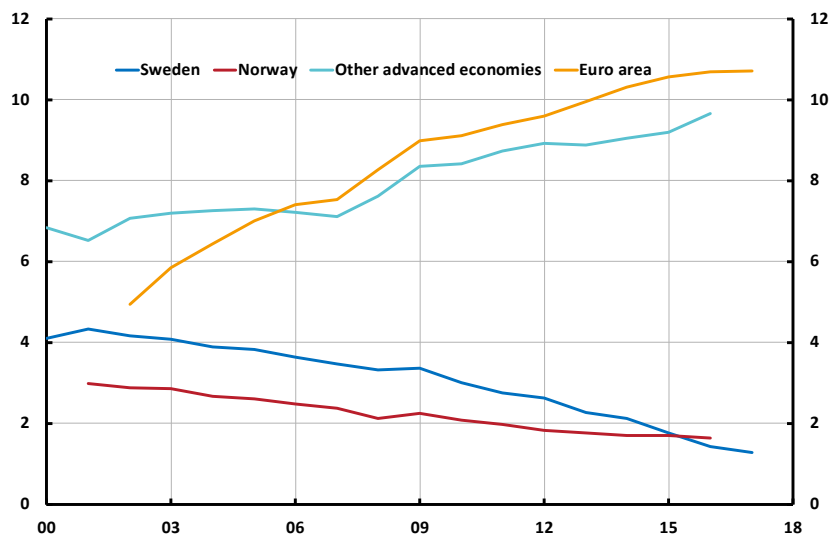
Index, 5 January 2015 = 100.



Source: ECB.

Figure 7: Declining use of cash in Sweden

Percent of GDP.



Sources: BIS and the Riksbank.