Evaluation of the Riksbank's Monetary Policy 2015–2020

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List of Acronyms

bp	basis points
CPI	Consumer Price Index
CPIF	Consumer Price Index with fixed interest rate
ECB	European Central Bank
FOMC	Federal Open Market Committee
FSA	Financial Supervisory Authority (in Swedish, Finansinspektionen)
GDP	Gross Domestic Product
GFC	Global Financial Crisis
HICP	Harmonized Index of Consumer Prices
KIX	Krona Index (a weighted average of currencies in 32 countries that are important for Sweden’s international trade)
QE	Quantitative Easing (asset purchases)
SEK	Swedish krona
SMEs	Small and Medium Enterprises
SOEs	Small Open Economies

Foreword

Since the introduction of Sweden's inflation target policy in the mid-1990s, and the Riksbank gaining a more independent status in relation to the Riksdag and the Government in the late 1990s, the Committee on Finance has conducted regular external and independent reviews of Sweden's monetary policy. To date, three reviews have been conducted. The first was performed by Professors Francesco Giavazzi and Frederic Mishkin and covered the period 1995–2005 (2006/07/RFR1), the second by Professors Charles Goodhart and Jean-Charles Rochet for the period 2005–2010 (2010/11:RFR5) and the most recent for the period 2010–2015 by Mervyn King, former Governor of the Bank of England, and Marvin Goodfriend, Professor at Carnegie Mellon University (2015/16:RFR6).

In June 2020, the Committee on Finance decided to commission a new, fourth review of Sweden's monetary policy for the period 2015–2020. In conjunction with this, Patrick Honohan, former Governor of the Central Bank of Ireland and member of the Governing Council of the European Central Bank, and Nellie Liang, former Director of the Division of Financial Stability at the US Federal Reserve, were appointed to perform the review. In January 2021, Liang was replaced by Karnit Flug, Professor at Hebrew University and former Governor of the Bank of Israel, when Liang was offered a top position in the US Government Administration. The focus of the new review is on examining Sweden's monetary policy during the – from a historical perspective – exceptional monetary policy period 2015–2020, characterized by low inflation, a negative repo rate and heavily expanding central bank balance sheets (the terms of reference are accounted for in greater detail in an annex to the report). Economist Marie Hesselman acted as Evaluation Secretary for Flug and Honohan.

Flug and Honohan commenced their work in March 2021, and the findings of the review are now presented in this Report from the Riksdag. The Committee on Finance hopes that this review will further stimulate the already lively monetary policy debate and contribute to the future setting of Sweden's monetary policy. During the spring of 2022, the Committee on Finance will be circulating the review to various consultation bodies before holding a public hearing on the review and comments of the consultation bodies in June 2022.

Stockholm 31 March 2022

Åsa Westlund
Chair of the Committee
on Finance

Elisabeth Svantesson
Deputy Chair of the
Committee on Finance

Executive Summary

Covering the period 2015-2020, this is the fourth in a series of reviews of Swedish monetary policy carried out at the invitation of the Committee on Finance of the Riksdag over the past two decades. The Riksbank's monetary policy has been energetic and expansionary in recent years. Its actions helped bring inflation close to target and, in 2020, helped limit the impact of the Covid pandemic on Sweden's economy and financial system.

Contrasts with Previous Period

In several respects, policy has been markedly different from that of previous years. Just before the period under review 2015-2020, the stance of monetary policy had changed rather sharply, as the Riksbank moved significantly from its cautious stance in coping with aftershocks of the Global Financial Crisis (GFC). Leaning against the wind of rising housing prices, the Riksbank had previously been slow to lower interest rates, resulting in an undershoot of inflation, appreciation of the krona and unduly high unemployment. From mid-2014, however, the policy rate was lowered more aggressively, reaching zero following the October meeting of the Executive Board, before going even lower in the face of the more expansive stance of the ECB.

In addition, since 2015, the Executive Board of the Riksbank seems to have been much less sharply divided than before in their assessments of appropriate policy. The frequency of dissents dropped and differences were mainly over timing of movements rather than on the general thrust of policy.

Policy Vigour and Novel Instruments

Vigorous application of what had become thought of as unconventional measures characterized Swedish monetary policy in this period. These measures, which partly paralleled similar actions being adopted in the euro area, were adopted first to bring inflation back up from the too-low level where it seemed to have got stuck in 2012-4 and subsequently as a response to the global financial market panic and the sharp contraction of economic activity associated with the outbreak of the Covid-19 pandemic.

The main policy interest rate was pushed below zero and remained there for five years. While the negative policy interest rate was the most vivid distinctive policy tool used in this period, it was not the only one.

The Riksbank moved quickly and decisively in March 2020 in response to the Covid crisis, and the main measures adopted were appropriate.

The Riksbank lowered long-term bond yields by expanding its balance sheet through outright purchases of government, and later other, bonds. The scale of these purchases was greatly increased in 2020. In the same year, concerned to ensure that small businesses would not be deprived of bank credit because of a lack of bank liquidity, the Riksbank enhanced the access of credit institutions to liquidity through a "funding for lending" type scheme.

Another significant, albeit technical, innovation related to the treatment of housing costs in the measurement of inflation for the target; this was designed to ensure that interest rate movements did not mask the underlying trends in inflation.

All of these initiatives seem to have been well-judged and effective.

Impact on Inflation

With these measures, the Riksbank succeeded much better in its main statutory objective, namely price stability, than in the previous five years. Inflation returned to within the Riksbank's variation or tolerance band of +/- 1 per cent around its target of 2 per cent per annum by 2016 and stayed there until the pandemic shock. Although inflation averaged about ½ per cent in 2020, by the end of that year there were signs that inflation would soon return to the variation band before long. (Indeed, subsequent events pushed inflation much higher in 2021—after the end of the period under review).

Wider Economic and Financial Performance

The general macroeconomic performance of Sweden was moderately good. Average annual GDP growth 2015-9 was 2.6 per cent, better than the euro area, but not as good as Denmark, for example. Adding 2020 brings the average down to 1.7 per cent. There were occasional patches of weakness in 2016, 2018 and 2019. Unemployment averaged 6.8 per cent 2015-2019 and fell by less than 1 percentage point during that period – much less than the fall in the euro area, but about the same as the fall in Denmark (where, however, the average rate of unemployment was just over 4 per cent). Persistent high unemployment among recent immigrants was a contributory factor in slowing the reduction of the average unemployment rate. Financial markets were functioning well during 2015-2019, and risk spreads were low. The turmoil in financial markets that broke in March and April 2020 with the outbreak of the Covid-19 pandemic was short lived, and calm was quickly restored to the financial markets.

Interest Rates: the Return to Zero

It is evident that negative interest rates would not have been employed by the Riksbank had it not been for the exceptionally low interest rate environment worldwide and especially in the euro area. It was more than six months after the ECB moved its key deposit rate below zero before the Riksbank followed suit, bringing its main policy rate (repo) into negative territory in early 2015, and lowering it further later that year and in 2016. This expansionary stance appears to have had the desired effect in pushing inflation up towards target.

By the end of 2018 the Riksbank had decided to bring the repo rate back up, with a first increase taking effect in early 2019 and a return to zero in January 2020, whereas the ECB (with lower inflation rates) remained much more accommodative.

The Swedish rate increases occurred even though inflation had only recently reached the 2 per cent target and indeed dipped below it again. Furthermore, inflation expectations which had only moved slightly above 2 per cent, were heading down again. Unemployment too was trending upward, and – although the labour market was still strong for Swedish-born participants – unemployment among these was also increasing somewhat.

The two increases in repo 2019-2020 represent a rather prompt tightening of policy which contrasts with the approach of the other central banks that have used negative interest rates, and can only with some difficulty be rationalized as a necessary response to actual or expected inflation or other conjunctural indicators at the time the decisions were taken. Instead, it seems more reasonable to interpret these moves as influenced by the attraction of discontinuing the use of an unconventional instrument, seen as not having delivered results that would justify its continuation, given the risk that adverse side-effects could increase with prolonged use.

Several types of side-effects of negative rates were considered, especially those affecting the functioning of the banking system, the supply of credit, risk-taking and asset price movements, though precise quantification was lacking. A particular concern at the Riksbank was the fear that trust in, and support for, the Riksbank itself by the general public could be damaged if bank deposit rates for households were to go negative; banks were understood to be making plans in that direction. Furthermore, the persistent weak trend in the external value of the krona had led to a public perception (in some circles) of wider economic weakness which, despite the fact that this was not the case, was seen by some as weakening public support for the Riksbank's policy stance.

The decision not to return to negative repo when the pandemic struck, and the explanations that were offered for this, point in the same direction, though the tools that were used were well-adapted to the particular nature of that crisis. However, in its policy statements during the pandemic, the Riksbank did emphasize that it does not rule out future reduction of the policy rate into the negative territory if the conditions will merit such a move – though it seems that the potential impact on the krona would be a prominent factor in such a decision.

Asset Purchases (QE)

Two episodes of asset purchases represented the other major initiative of the period under review. Having previously experimented on a small scale, the Riksbank was ready in 2015 to combine its move into negative interest rate territory with a programme of government bond purchases. This was on a smaller scale than that operated by the ECB and was gradually tapered.

The much stronger 2020 expansion of asset purchases, both in quantity and in range of asset types, was a response to the impact of the pandemic on financial markets. As was the case for other central banks, decisive and speedy action was certainly needed in this situation. The Riksbank rose to the occasion, displaying a good degree of crisis-preparedness, decisiveness and collegiality in arriving speedily at policy solutions. Nevertheless, action on such a scale also raises important issues of effectiveness and side-effects which have not yet fully received the analytical attention they deserve. The largest part of the asset purchases was of mortgage-backed covered bonds (rather than the government paper mainly used by other leading central banks). This could have helped fuel housing price appreciation.

Two main reasons for not buying more government bonds were the limited liquidity left in that market following previous Riksbank purchases and concerns that a continued increase in the share of the stock of outstanding government debt held by the Riksbank could eventually raise questions about consistency with the Treaty prohibition on monetary financing.

The purchase of private sector bonds and commercial paper was much smaller in scale but, by drawing the Riksbank into direct financing of firms, presents some new challenges.

The Role of Housing Costs in Monetary Policy

Having loomed large in the previous five-year evaluation, when both policy action (leaning against the wind) and measurement (whether a price index with a different treatment of owner-occupier housing costs should be used) were important features, housing played a smaller role in the period since 2015. As had been recommended in the previous review, the Riksbank did adopt the CPIF index (which removes the direct impact of changes in mortgage rates) from late 2017; but this did not make much difference in practice, since interest rate movements were not very pronounced in the period.

Housing prices peaked in 2017, before resuming the previous upward trend in 2020; household debt as a percentage of disposable income followed a similar path. While members of the Riksbank Executive Board were concerned with the potential impact of low interest rates on housing prices, and felt the need for macroprudential policy measures, there was little or no explicit consideration of monetary policy actions to lean against upward house price movements in this period. The Riksbank's purchases of covered bonds will also have added to demand in the housing sector by preventing an increase in bond yields and therefore in mortgage interest rates.

It must be noted, however that, albeit small, the purchase of the bonds of construction and development companies will also have helped increase the *supply* of new homes.

Communication

With Swedish short-term interest rates constrained (by prevailing world conditions) to be close to zero, communication of policy intentions becomes especially important (for example when it is desired to lower long-term interest rates in order to bring inflation back up to target) inasmuch as market expectations will influence the slope of the yield curve.

While the Riksbank's approach to communication has remained in general excellent, its forward guidance has long come in for some criticism. The fact that outcomes have not closely followed the forecast repo rate path may partly explain why the forward guidance appears not to influence market expectations as much as might have been expected. This is even more so when future policy being signalled also has QE and other important components. The Riksbank itself attached less importance than in the past to these forecast paths, seeing them mainly as an exercise in transparency (given that the Riksbank's macroeconomic forecasts should be consistent with the expected rate path). It may be time to reconsider the methodology around the announcement of an expected rate path, making it clear when (as at present) it does not entail a commitment, and that rate decisions will depend on how economic conditions evolve.

A particular instance of forward rate guidance creating some frictions relates to the intention to bring repo back to zero, clearly signalled from 2018. As mentioned, by late 2019 the macroeconomic circumstances were less obviously pointing to the final move, but the prior signalling created strong market expectations which the Riksbank felt reluctant to disappoint.

A somewhat different forward guidance hiccup occurred in 2020 when it took several months from the time the Riksbank announced its intention to buy corporate paper to prepare implementation of that policy. By the time the preparations were complete, the need for purchases had arguably vanished, yet the Riksbank felt compelled for credibility to go ahead with the purchases, seemingly a captive of its earlier forward guidance. A more nuanced announcement could have avoided this time-inconsistency trap.

Influence of International Factors

The conduct of Swedish monetary policy is inevitably constrained by strong international links, not just to the euro area and to other members of the European Union, but also to US dollar financial markets and the wider international economy. The impact of this influence is evident in the way in which interest rates were lowered ahead of the ECB's expanded QE programme launched in early 2015. It was also true in March 2020, when financial market stresses hit most economies more or less simultaneously both directly from the pandemic shock and also as international flows transmitted shocks from country to country.

Successful monetary policy in such an environment requires close attention to international flows and good relationships with other central banking partners, as have been exemplified in the swap arrangements with the US Federal Reserve and the ECB as well as with other countries for which Sweden would be more the provider of funds than taker.

After a five-year long experiment, the Riksbank has, like the Bank of England and the Federal Reserve, decided that it can best deliver on its mandate without going to negative policy rates. Nevertheless, it is striking how long-term Swedish bond yields seem to have followed those of the German Federal Government into more negative territory despite the return of the (short-term) repo policy rate to zero, thereby confirming that Swedish financial market conditions are far from being fully under the control of the Riksbank.

Exchange Rate

The average exchange rate of the SEK against major currencies at the end of the period under review was little changed from its position at the start. However, this is the net result of a four-year period of steady depreciation against the euro, followed by a strengthening from March 2020. That the SEK is not pegged to the euro or any other currency might have allowed a somewhat greater degree of monetary policy autonomy than is sometimes supposed (though whether a different policy would have been more effective is less clear). Indeed, it may be that a partial insulation of Sweden from the constraints of international financial integration can best explain the Riksbank's abandonment of negative policy rates as an expansionary tool. Compared with the Danish krone (which has a quasi peg to the euro) and the Swiss franc, the SEK is not as vulnerable to capital inflows when its short-term interest rates move above those of the ECB. After all, weakness of the SEK against the euro continued even after repo returned to zero at the start of 2020. As such the Riksbank has more freedom of manoeuvre on its policy interest rates.

How much attention should an inflation targeting country pay to the evolution of the exchange rate? Certainly, it is important as a leading indicator of imported inflation. Despite the single-minded focus on inflation prospects envisaged by inflation targeting, many central bankers, including those at the Riksbank, have an eye to the potentially damaging effect of strong exchange rate movements on different productive sectors (importers and those taking holidays abroad hurt by depreciation, exporters by appreciation). It is not clear, however, that this is based on a fully thought-out strategy for integrating the exchange rate into Swedish inflation targeting: this would benefit from further systematic analysis.

As mentioned, public opinion in Sweden, as interpreted by some Riksbank decision-makers, also attaches symbolic importance to not seeing the krona as weak — even independent of any true economic effects. Undue emphasis on such considerations could in the end result in losing the anchor of the inflation target, though this has not happened.

Additional Side-Effects of Expansionary Monetary Policy

The use of a wider range of monetary policy instruments, including negative interest rates and QE, to deliver on their price stability mandate has resulted in central banks being drawn into unfamiliar territory as far as side-effects are concerned.

Side-effects of this wider set of policy tools, whether in relation to the functioning of the banking system, excessive risk-taking resulting from easy finance, direct financing of carbon-intensive industry, or adverse effects on income and wealth inequality, have become more salient. While such side-effects, and other long-considered ones such as those affecting macroeconomic outcomes including growth and employment as well as financial stability, are not explicitly referenced in the existing Riksbank Act, they are clearly of public concern (and may be added in forthcoming legislation), as well as to Riksbank decision-makers, as evidenced by public statements — and rightly so.

Not having been granted a more central role in the formation of financial stability policy in Sweden, the Riksbank is in charge of only a limited subset of the available policy tools that can be used to offset undesired risk-taking in housing and other asset markets. The Riksbank can still advise on other such policies, and is well equipped to do so, given its capacity for macroeconomic policy research and its independence from the kinds of short-term political pressures that have often resulted in a reluctance to adopt macroprudential policy in other countries. The relevant agencies of government should, if they are not willing to act in line with such advice, be expected to explain why.

The impact on inequality of the lengthy period of low nominal and real interest rates has attracted attention all over the world. Low interest rates are clearly associated with high asset prices and it is evident that the concentration of wealth has increased. It is important to note that these low interest rates are only partly a consequence of the policies of the world's central banks, let alone of Riksbank policy. Furthermore, a tighter monetary policy in Sweden during this period of relatively weak aggregate demand would have resulted in higher unemployment, which in turn would have had an adverse effect on income inequality.

As with other central banks, it is only relatively recently that the Riksbank has begun to address the net impact of its expansionary policies on income and wealth inequality and on climate change. Quantification has proved elusive here, especially in relation to wealth (as distinct from income) and, despite recent policy statements on ecological sustainability, it may be that the Riksbank needs to explore these issues in greater depth. In particular, data on the distribution of wealth should once again be collected for Sweden. The Riksbank has recently (from 2021) taken a more forceful approach than before on climate change when it comes to selection of corporate bonds in its asset purchase programmes; such steps are important if the general public is to retain the trust in their central bank that is essential for its effectiveness.

Legislation and Mandate

The Riksdag is considering a revision of the Riksbank Act. It will be helpful for the effectiveness of this independent institution if (as is proposed) the legislature clarifies the secondary objectives that have so far been implicit, but without narrowly prescribing the policy measures that are to be used in delivering on its mandate. We make no attempt to assess the consistency of the draft legislation with the Treaty on the Functioning of the European Union.

The draft legislation proposes to amplify the Riksbank's explicit mandate to cover matters such as the level of economic activity which indeed seem to have been already taken into account as a kind of implied monetary policy mandate. From this proposed amplification, as well as the decision that the definition of price stability should be subject to the consent of the Riksdag, it is clear that, without compromising the Riksbank's necessary independence, the Riksdag is rightly keen to be closely involved. Of course, it is advisable for legislators to avoid micromanage central banking or to be second-guessing the central bank on technical matters. Reliance on a trusted central bank, equipped with a full range of policy tools and the professional expertise to use them wisely in pursuit of its mandate over the long haul is what will serve Sweden best.

As mentioned, in the current set-up, the Riksbank has no direct responsibility for many of the "macroprudential" policy instruments available to national policymakers for maintaining financial stability. Nevertheless, the rapid and extensive measures adopted by the Riksbank in March 2020 reconfirms the importance to Sweden of being able to promptly deploy all of the instruments necessary to ensure price, macroeconomic and financial stability. Central banking tools for monetary policy and financial stability are not clearly separable. In a crisis, no sharp distinction can truly be drawn between the central bank's tools of monetary and financial stability policy. In its final decisions on the wording of new legislation, the legislature will do well to avoid introducing ambiguous procedural requirements that could hamper the speed and discretion that have proved in 2020 – as also in 2008 – essential for effective use of monetary policy instruments to combat sudden deteriorations in financial conditions threatening price and economic stability.

Even if the legislation does finally empower the Riksbank to take all necessary measures in circumstances that require urgent action, it will be important to ensure that the wording of the restrictions on the use of financial stability tools does not result in the Riksbank hesitating to act sufficiently early to prevent a disturbance metastasizing into a crisis that could have been avoided. It is vital that such inaction bias does not infect the Riksbank.

The Future

The pandemic represented an extreme example of an exogenous shock – but there have been others. Since economic forecasting is not a precise tool, the policy regime should be not only well attuned to the central macroeconomic projection but robust to deviations from that central projection. The Riksbank has passed this test well. It will be important to ensure that it continues to have the toolbox and the freedom of action to respond to unpredictable shocks in the future.

The time will come for a less expansionary stance of monetary policy in Sweden. Given the range of tools that has been deployed over the past decade, and the accumulation of assets on the balance sheet of the Riksbank, there will, as in other countries, be a range of complex decisions to be considered around this exit. The communications challenges will be considerable. Potential effects on financial stability will have to be taken into account. Some of the side-effects of expansionary measures, as with inequality and climate impact, will tend to go into reverse. In this environment, it will be crucial for the Riksbank to retain the confidence of the Riksdag and other public bodies, of the financial markets and of the general public.

Introduction

Covering the period 2015-2020, this is the fourth in a series of reviews of Swedish monetary policy carried out at the invitation of the Committee on Finance of the Riksdag over the past two decades.[1] The terms of reference of our Review are set out in Annex 1. The Review started its work in March 2021 and was submitted to the Riksdag in February 2022 for translation into Swedish.

We are grateful to the Committee on Finance of the Riksdag, and to Pär Elvingsson of its Secretariat, for their help and cooperation in providing us with the facilities required to conduct this Review. We are particularly indebted to Marie Hesselman of the Riksbank who was seconded to work with us. Her intimate institutional knowledge, her command of the economics of central banking and her extensive network have been of great value. Despite the fact that so much of our work had to be done online and in video-conferences, she was able to arrange meetings with all of the counterparts with whom we felt it necessary to meet, she assembled and charted the data needed to analyse financial and economic developments and she helped source published and unpublished written material. (She should not, however, be held responsible for any of the observations and conclusions set out below.)

We interviewed every member who served on the Board of the Riksbank during the period 2015-2021. Staff of the Riksbank provided extensive assistance in explaining their approach to formulating monetary policy options, their working arrangements and the econometric models that they use. We also interviewed members of Finansinspektionen (the Swedish Financial Supervisory Authority), a number of independent economists, both academic and representative of the different constituencies of social partnership, and others with views and experience of monetary policy in Sweden. A complete list of those whom we met is set out in Annex 2. We are very grateful to all of these for helping us base our review on solid evidence.

A five-year long episode of negative policy interest rates and two large waves of asset purchase (the so-called quantitative easing—QE) marked the period of Sweden's monetary policy under review. While there was a clear influence from somewhat parallel developments in the economies of Sweden's principal trading and financial partners, the timing and scale of these vigorous measures was calibrated to national conditions. They were effective in bringing Sweden's inflation close to target before the Covid-19 pandemic, and in protecting Sweden from financial market disruption in March and April 2020 and from an even deeper decline in economic activity due to the pandemic.

[1] The first evaluation was made by Francesco Giavazzi and Frederic Mishkin, and covered the period 1995-2005. The second was by Charles Goodhart and Jean-Charles Rochet, and covered the period 2005- 2010. The third was by Marvin Goodfriend and Mervyn King and covered the period 2010-2015.

Some of the tools used and policy decisions remain somewhat controversial.

The somewhat hasty decision to lift the repo rate out of negative territory at the end of 2019 – before inflation had been firmly anchored and with unemployment still rather high – points to the Riksbank's discomfort with negative rates.

Indeed, it did not choose to lower rates again when the pandemic hit, relying instead for its prompt reaction on a larger asset purchase programme, which entailed the controversial inclusion of mortgage covered bonds and corporate bonds. These additional asset classes could be justified in the height of the financial panic of March and April 2020, and it is acknowledged that calm financial market conditions were quickly restored. But it is less clear that sustained purchases of corporate bonds over a longer period yields benefits commensurate with the risks involved, including the risks to the reputation of the central bank as an impartial manager of monetary and financial conditions in the public interest.

The exceptionally low global real interest rate environment against which Swedish policy decisions had to be taken boosted the market prices of real and financial assets--thereby aggravating the concentration of wealth. Nevertheless, by supporting the level of employment, the expansionary stance of Riksbank monetary policy protected average incomes in the lower part of the distribution thereby likely avoiding an overall worsening of income inequality.

The experience of this remarkable period 2015-2020 again demonstrates the wide range of monetary policy tools that need to be deployed in the face of shocks in the highly leveraged and volatile financial world of recent years and the importance of bringing them to bear with speed and flexibility. Communicating these complexities remains challenging, especially considering the complex side-effects on wider economic policy goals, including the functioning of banking and financial markets in general, financial stability, economic inequality and climate change. The Riksbank has been communicating its policy, and the rationale behind it, to the various stakeholders in a clear and effective way. However, the thrust of some recent legislative proposals suggests that the Riksbank needs to be more effective in persuading legislators of the value to Sweden of it retaining its freedom of action in independently deploying all its available tools to ensure, in appropriate collaboration with the other agencies of the State, that it can be effective in delivering on its mandate.

The body of the report is organized as follows.

- Reflecting the primacy given to price stability in the Riksbank's current mandate, Chapter 1 discusses the target used and the overall achievement relative to this target.
- Chapter 2 describes the measures taken during the first five years of our review window 2015-2019, during which the main policy interest rate was negative. Given the commentary by our predecessors on the conduct of Executive Board deliberations in earlier years, we look at how things have

changed in that respect as well as on the communications and forecasting performance of the Riksbank and the degree to which it has been effective in anchoring market expectations.

- Chapter 3 deals separately with 2020, and the special measures adopted early in that year to deal with the financial market and economic disruption caused by the pandemic.
- Chapter 4 considers the effectiveness of three major features of monetary policy, sometimes thought of as "unconventional" and which have been used both in Sweden and in several other relevant central banks since the Global Financial Crisis, namely negative interest rates, outright asset purchases and forward policy guidance.
- Monetary policy in a small open economy such as Sweden is strongly constrained by external factors. Chapter 5 focuses on these, looking in particular at the impact of exchange rate movements on monetary policy decisions over the review period.
- Monetary policy tools can have important effects on financial stability as well as on non-financial aspects of economic performance such as inequality and climate change. Chapter 6 assesses the degree to which these have been relevant in the Swedish context.
- Chapter 7 turns to the question of new legislation and the importance of ensuring that the modifications to the Riksbank Act are crafted in such a way as to enable the Riksbank to deliver effectively and promptly on the mandate given to it.
- This is followed by some Concluding Remarks.

The recommendations derived from our analysis are presented immediately following this Introduction. They deal with the mandate of the Riksbank and the choice of target; the role of negative interest rates and asset purchase in the implementation of monetary policy, including the planning of exit from the use of exceptionally expansionary policy; the role of exchange rate movements in determining monetary policy; communications and forward policy guidance, and the transparency of Executive Board deliberations; and on side effects of monetary policy on inequality and climate change. We address the subtle challenges that arise in the interaction between monetary policy and financial stability, and have felt it appropriate to warn about some problems that might arise from proposed legislative reform.

It strikes us that Sweden has been well-served by the monetary policy of the Riksbank in the period under review. Its skilled and dedicated staff have delivered more effectively than in earlier years on the mandate which the Riksdag has given it. We echo the assessment of previous reviewers that Sweden can be proud of its central bank and the quality of people who choose to work for it.

Recommendations

R.1 The Mandate of the Riksbank for Monetary Policy

The proposed expansion to the Riksbank's mandate in the draft legislation is welcomed, formalizing, as it does, the de facto inclusion of production and employment as a secondary target.[2] In practice, the Riksbank has already taken the real economy into account in formulating its monetary policy actions, recognizing that "permanently low and stable inflation" cannot be ensured in a weak economy. Nevertheless, the clarification is constructive in helping to remove any doubt as to the importance of such considerations.

R.2 The Target

Moving from CPI to CPIF as the measure of inflation used by the Riksbank in its target has been a success. By avoiding the perverse mechanical impact of interest rate movements on the target that was present when CPI was the target, clarity of the policy stance is promoted.

The Riksbank should keep under review the overall design of its inflation target, taking into account shifts in the strategy of other leading central banks notably in regard to the question of whether some overshooting of the target should be tolerated, in order to compensate for undershooting attributable to having reached the lower bound of the policy rate. There is no pressing need for the Riksbank to revise its approach now, but it should not allow its targeting to deviate too far from the practice of the major central banks of Sweden's economic and financial partners. The +/- 1% variation band around the target can be exploited in this regard within the current framework.

Under existing legislation, the definition of price stability and the choice of an inflation target is a matter for the Riksbank itself. In this respect its autonomy is comparable to that of the ECB and Federal Reserve and greater than that of the original inflation targeter, the Reserve Bank of New Zealand, for which negotiation between Bank and Government is specified, and much greater than that of the Bank of England, which is given its inflation target by the British Government. The proposal to require Riksdag consent for the Riksbank's specification of the price stability target somewhat reduces the autonomy of the Riksbank, but leaves it with greater autonomy on this matter than many others.

One potentially important drawback to this proposal, however, is the danger that this procedure could introduce a bias for inaction if the Riksbank, though regarding a change in the target to be desirable, could not easily find a satisfactory formulation that would command sufficient support in the Riksdag.

[2] It is important to note that we make no attempt to assess the compatibility of the draft legislation with the Treaty on the Functioning of the European Union.

This danger can be averted if the Riksdag continues in practice to defer on technical aspects of the design of the inflation target.

R.3 The Toolkit – Interest Rates

Negative interest rate policy should remain part of the toolkit. Experience has been generally positive with close to full pass-through from the main policy rate to lending and other key interest rates.

Subsidized lending or deposit rates have been used by the Bank of England and the ECB among others, though only for broadly defined segments. The Riksbank's "funding for lending" scheme introduced in the panic of March 2020 was broad in scope – banks' access was dependent only on the funds being on-lent to companies. On the other hand, the scale of subsidy involved was limited given that pricing of these collateralized loans was at the repo rate. One can imagine future circumstances under which such measures might be needed again. While this was appropriate given the special conditions of the time, see little advantage for the Riksbank to go further in introducing such distortions: subsidies for preferred economic sectors are better channelled through the government's budget.

R.4 The Toolkit – Asset Purchase

Asset purchase (QE) has proved to be a valuable tool both in Sweden and in other countries where short-term policy interest rates have approached their lower bound. Now that the processes for such purchase programmes have been tried and tested, they should remain part of the toolkit and can be useful in influencing the slope of the yield curve even when the policy rate is above its lower limit.

Going beyond Swedish government bonds in asset purchase can be less desirable from an economic impact point of view; it is understood that the Riksbank has been influenced by concerns that substantial further purchases of Swedish government bonds could be thought of as falling foul of the monetary financing prohibition of the Treaty.

Even though only investment grade bonds are acquired, the potential drawbacks, political and economic, of becoming entangled in the reallocation of financing towards larger firms, together with the credit risks that may be involved, suggest that purchase of corporate bonds and commercial paper should only be considered at times of acute market disruption.

Purchase of mortgage covered bonds – which has formed the largest part of the asset purchase programme – clearly involves a preferential tilt of financing towards residential property; when contemplating further purchases of covered bonds, the Riksbank should carefully consider whether this important side-effect is desirable or acceptable.

R.5 Exiting from Expansionary Measures

The Riksbank should devote more attention to scenarios in which QE and the other exceptional measures introduced during the pandemic can be rolled back and provide greater clarity about its plans. In particular, it should clarify the sequence in which it will roll back the purchase of the various asset classes. The first steps should be to curtail and then stop purchase of corporate bonds. Does the Riksbank intend (as is the case with several other central banks) to move interest rates higher before stopping reinvestment?

More generally, the sequence of steps in unwinding exceptional policy measures should always be planned for and publicly communicated.

R.6 The Exchange Rate

It has been suggested by some critics that refocusing monetary policy on ensuring a more stable exchange rate for the SEK is desirable. As long as there is no decision to join the euro, we believe that the Riksbank already pays sufficient attention to this rate within the context of maintaining price stability. This seems to have been sufficient to avoid sharp changes in the external value of the currency that might seriously affect competitiveness or financial stability.

R.7 Communications and Forward Guidance

Conveying the distinction between its repo rate forecast and policy commitments remains challenging for the Riksbank as for other central banks. Although the Riksbank has repeatedly stated that the repo path is a projection and not a commitment, it seems that it is not perceived by the public as a mere forecast. This challenge of forward policy guidance deserves greater attention in the Riksbank's communication, with a view to clarifying what is a forecast, what is a conditional commitment (and what the conditions are), and what is an unconditional commitment.[3] As is well-known this is not a simple task, as economic and financial market conditions can change in unforeseen ways, and future members of the Executive Board may not feel themselves to be fully constrained by commitments entered into by their predecessors. But that only serves to emphasize how important it is to plan communications around forward guidance to reduce the associated risks.

For example, that the repo path is not a commitment tends to jar with other aspects of the Riksbank's forward policy guidance. Indeed, the fact that the Riksbank felt obliged to go ahead with activation of the corporate purchasing program when it was ready in September 2020, even though corporate bond spreads had already narrowed, reflects the fact that the announcement of this programme in March 2020 was seen, both within and outside the Riksbank, as a commitment and not just a projection dependent on market conditions. The

[3] At the very least, it should be stressed that the repo rate and QE forecast path (interest rate and QE) is conditioned on the realization of the main elements of the economic forecast.

Riksbank felt that it had to make good on the commitment to implement the programme (in order maintain credibility), even though the conditions that had motivated it no longer prevailed; this might not have been necessary had there been an indication at the outset of what conditions would be required to justify activation of the programme when it was ready.

There is much to be said for keeping forward guidance on QE less specific especially for the longer horizon (e.g., asset class, quantities). Here there is a need to weigh the possibly reduced effect of reduced specificity on shaping expectations, against the benefit of maintaining flexibility for policy decisions when the outlook changes.

Another way to deal with the problem of time inconsistency of policy forecast/commitment especially in times of high uncertainty is the use and presentation of alternative scenarios. The Riksbank used to present different policy rate scenarios in the past, but has not done so since 2015. This could be an effective way to convey uncertainty regarding economic developments and therefore also regarding the future policy path.

R.8 Transparency of the Deliberations of the Executive Board

The published minutes provide a fairly detailed statement by each Executive Board member about the economic outlook and the arguments for the desirable policy path. In this sense it is very transparent and provides the public with the information of how each member of the board forms his or her view about the desired policy action. However, as the minutes are not organized around issues, they do not give a clear sense of the debate or internal discussions. It would be desirable to annex to the minutes a more detailed analytical section that would focus at greater length on the main issues that were discussed (especially those where different views were expressed) and summarize the different views expressed on these issues.

R.9 Secondary Mandate on Financial Stability

The draft Riksbank legislation makes separate provision for a secondary mandate on financial stability. In this respect also the Riksbank has not previously neglected what was seen as an implicit mandate. But, by separating the legislative authority for financial stability actions from that for monetary policy, and by identifying a limited number of tools that are to be considered as monetary policy tools, the draft legislation introduces a somewhat artificial distinction which is likely to be impossible to maintain in practice, as the most important operational tools of liquidity support necessarily have monetary policy implications. Experience in other countries shows that attempting to maintain a separation between tools that are focused on price stability and those focused on financial stability can result in sub-optimal measures for both objectives.

The last few years have demonstrated that the range of tools needed to ensure achievement of the monetary policy mandate is indeed a wide one; this reality is not reflected in the narrow focus proposed in the draft legislation.

The most practical implication of the proposed separation relates to the requirements (in Section 11 of the draft legislation) for cooperation with other authorities of the State. In many instances, such cooperation should indeed be expected when structural policy changes are being planned. However, it should not become routine that the Riksbank is expected to consult on its use of liquidity tools. The final paragraph of Section 11 as worded is intended to ensure that speedy action in an emergency such as that of March 2020 need not be delayed. But the wording of this paragraph may not be strong enough to insulate the Riksbank's monetary policy discretion from procedural obstacles and delays. Thus the requirement for pre-consultation may lead to inaction bias by the Riksbank when the grounds for policy action may not be clearly separable between financial stability and price stability objectives, and when the determination whether the circumstances merit operation under "a crisis mode".

Monetary policy actions can have important financial stability consequences — not always in a helpful direction. For example, the expansionary policy environment has clearly added to upward pressure on housing prices which could present stability risks.[4] The textbook response to such conflicts includes the use of macroprudential tools to dampen unwarranted asset price movements. Most of these tools are at present under the control of Finansinspektionen (FSA). Taking the current division of labour between the Riksbank and the FSA as given, the Riksbank can (and does) still advise on macroprudential policies that are not under its control, and is well equipped to do so, given its capacity for macroeconomic policy research and its independence from the kinds of short-term political pressures that have often resulted in reluctance to adopt macroprudential policy in other countries. The FSA and other relevant governmental authorities should, if they are not willing to act in line with such advice, be expected to explain why.

R.10 Side-Effects of Monetary Policy on Environmental, Social and Governance Aspects

The broader toolkit being used by central banks since the GFC and the extremely low interest rates that have recently prevailed have drawn attention to hitherto neglected side-effects of monetary policy. In particular, the questions of whether monetary policy should take account of (i) climate change and (ii) inequality have come to the fore both in Sweden and abroad.

In practice, the extent to which climate change can be influenced by monetary policy actions is small, but the Riksbank should clearly play its part. This

[4] The link between monetary policy and housing prices in Sweden has been the subject of academic econometric studies, e.g. Rosenberg (2019).

will be manifested mainly through its policy on asset purchases. The Riksbank's new policy statement on this matter, which took effect from the start of 2021, seems to be well crafted.[5] Its reports to the Riksdag on implementation of this policy should be detailed and transparent.

The effects of monetary policy on income and wealth distribution are complex. The general direction of the effects is clear: expansionary policy reduces income inequality through its effect on labour income distribution, while it increases wealth inequality through its effect on asset valuations. However, quantifying these effects has been challenging in all countries: the expansionary path of monetary policy since the GFC may have had net favourable effects on income distribution in the euro area, but may have been slightly negative in the US. Wealth effects may have been worse. In the case of Sweden, the necessary data for assessing wealth distribution changes has not been collected for some years. This is an omission that should be corrected. It would be desirable to have more studies on the effects of monetary policy on income and wealth distribution. In cases where a variety of monetary policy tools are available to ensure price stability, such studies could help make the Riksbank aware of choices that could have unnecessarily adverse effects on inequality. More generally, there is much to be gained from greater use of microeconomic data in the Riksbank's research programme.

The main tools for affecting income and wealth distribution are, however, within the domain of government redistributive policy. Furthermore, even if expansionary policy increases wealth inequality the opposite will likely be true of contractionary policy, so these effects will average out over the business cycle.

[5] It can be compared with somewhat different approaches recently announced by such comparators as the ECB, the Bank of England and the Federal Reserve. The ECB's position is the most relevant since it too has been a purchaser of corporate bonds for monetary policy purposes.

Chapter 1 Price Stability: Converging to the Goal

1.1 Fulfilling the Mandate: Price Stability and Macroeconomic Side-Effects

We begin with inflation. After all, the Riksbank's current statutory mandate for monetary policy is exclusively directed to price stability. This is unusual for a modern central bank. At one level it could imply that an evaluation such as the present one could focus exclusively on the Riksbank's achievement relative to this target. Yet policymakers' speeches make it clear that relevant decision-makers are also concerned about wider conjunctural performance and about side-effects. In practice, the Riksbank has always taken the real economy into account in formulating its monetary policy actions, recognizing that "permanently low and stable inflation" cannot be ensured in a weak economy.

Indeed, draft legislation now proposes an expansion to the Riksbank's mandate formalizing the de facto inclusion of production and employment as a secondary target. The draft Riksbank legislation also makes separate provision for a secondary mandate on financial stability. This area too has been a vital part of Riksbank thinking and influencing its actions.

This chapter focuses on the Riksbank's overall success in relation to its price stability mandate and also summarizes the performance of the real economy in the period under review. It discusses decisions about the measurement of inflation for policy purposes and the choice of inflation target. Later chapters will look in greater detail at the policies employed by the Riksbank and their impact on the Swedish economy.

1.2 Inflation Relative to Target 2015-2020

The years before the period under review were marked by a stagnation of the price level which only began to be rectified after the Riksbank's mid-2014 policy shift.

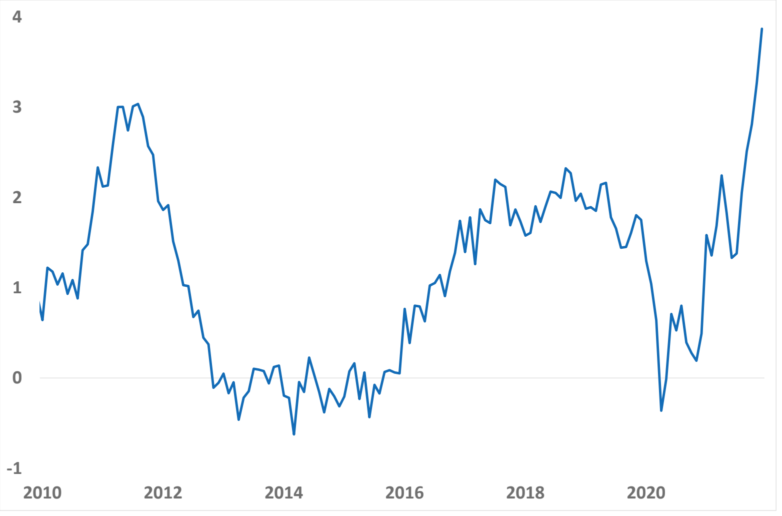
By the end of 2014, CPI inflation in Sweden had hovered around zero for more than three years — well below the Riksbank's target inflation rate of 2 per cent. Among the reasons for this sluggish rate of increase in prices, it is easy to see the part played by Riksbank policy. Its main policy tool, the repo interest rate[6] was increased during the second half of 2010 and the first half of 2011, thereby dampening economic demand and slowing inflation (Figure 1). Even though the Riksbank started to lower the repo rate again shortly after the

[6] The main policy rate of the Riksbank is the repo rate. It manages its fine-tuning operations involving the sale of certificates of deposit to the banks to ensure that the volume of bank deposits remunerated at the Riksbank's lower deposit rate is small. Therefore, even when bank liquidity is plentiful, the Riksbank's deposit rate has little relevance. This contrasts with the situation in the euro area, where the ECB's deposit rate is the most relevant policy rate during periods of excess liquidity such as have prevailed now for over a decade.

CPI started to actually fall (just before the end of 2011), the interest rate reductions were too slow to bring inflation back up to the target promptly.[7]

Figure 1 CPI inflation

Annual percentage change



Note: This is the former target measure CPI, which was replaced in 2017 by CPIF which removes the transitory effect of interest rate changes on measured inflation.
Source: Statistics Sweden

With the much more expansionary Riksbank policy stance from mid-2014, inflation soon picked up. Indeed, the average of CPI inflation 2016-2019 was, at 1.8 per cent, close to target; and it even exceeded 2 per cent for parts of 2017 and 2018. This was closer to the 2 per cent target than in most countries including the euro area (and most of the comparator small open economies (SOEs) (Figure 3)).[8]

Thus, while the Riksbank's fan chart of expected inflation as of early 2015 may have looked over-optimistic in the speed with which it forecast a return of inflation to target, it proved to be quite prescient (Figure 4). Indeed, using the alternative CPIF inflation data (as explained later, CPIF was adopted as the formal target variable in October 2017) inflation was well within the Riksbank's +/- 1 per cent "variation band" throughout 2016-2019.

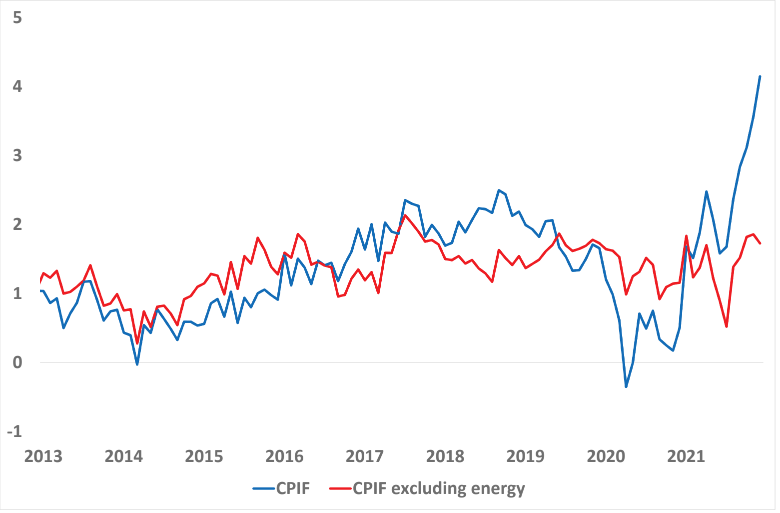
The drop to an average of 0.5 per cent inflation in the pandemic year 2020 evidently reflects unusual economic conditions in that year — so much so that 12-month inflation was briefly negative in early 2020.

[7] Admittedly, because the target variable (CPI inflation) was mechanically affected by a lowering of mortgage rates, the declining repo rate itself had a somewhat misleading effect of reducing measured inflation in this period. Nevertheless, inflation measured by the alternative series CPIF, which is free of this artificial effect, fell as low as zero in early 2014 (Figure 2).

[8] To show relevant international comparisons, we have included simple average data for all of the OECD countries with populations between about 5 million and 20 million, and with per capita GDP of at least US$ 40,000 PPP, namely Czech Republic, Denmark, Israel, New Zealand, Norway, Sweden and Switzerland. (Sweden's population is 10.4 million and GDP per capita about US$59,000 nominal and US$56,000 PPP.)

Figure 2 CPIF inflation and CPIF excluding energy

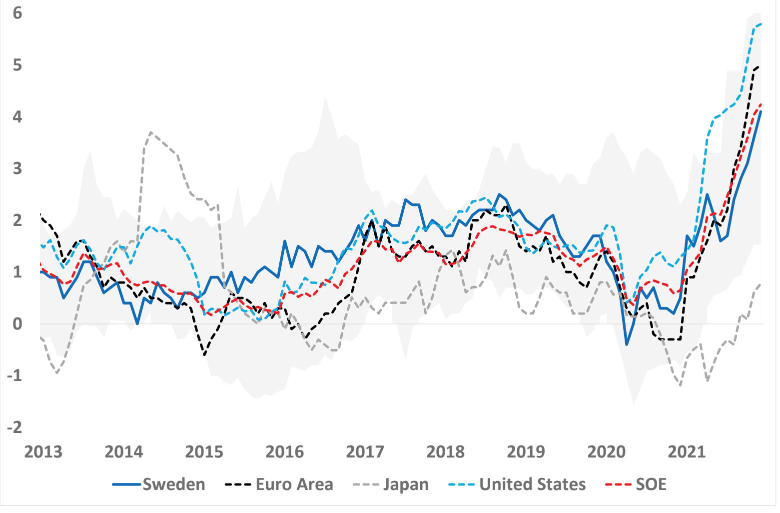
Annual percentage change



Note: This is the new target indicator CPIF.
Source: Statistics Sweden

Figure 3 Inflation rates in Sweden and selected countries 2013-2021

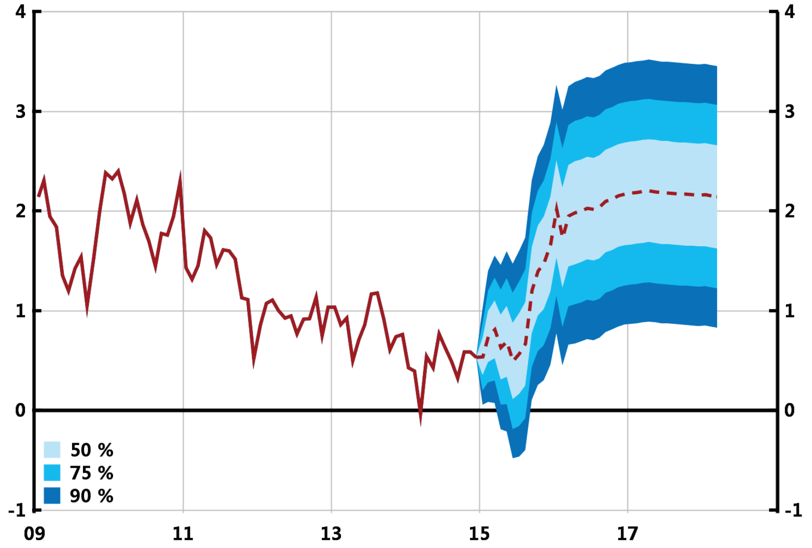
Annual percentage change



Note: Targeted inflation. The shaded area represents the range of outcomes in comparator small open economies: Czech Republic, Denmark, Israel, New Zealand, Norway, Sweden and Switzerland. SOE is the average of these countries.
Sources: Czech Statistical Office, Eurostat, Israel Central Bureau of Statistics, Japanese Cabinet Office, Statistics Denmark, Statistics New Zealand, Statistics Norway, Statistics Sweden, Swiss State Secretariat for Economic Affairs and U.S. Bureau of Economic Analysis.

Figure 4 Riksbank inflation fan chart as of early 2015

Per cent

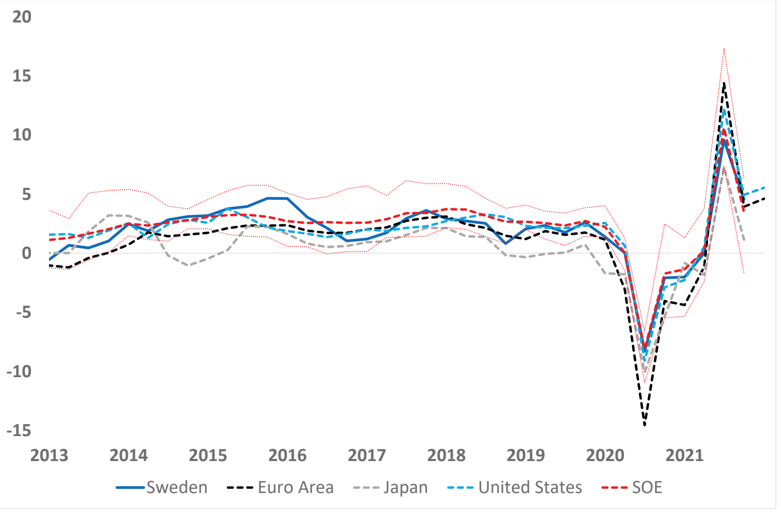


Note: The uncertainty bands are based on the Riksbank's historical forecasting errors. The CPIF is the CPI with a fixed mortgage rate
Source: Riksbank Monetary Policy Report February 2015

The relatively satisfactory inflation record 2015-2019 took place against a relatively stable overall macroeconomic environment. Average annual GDP growth 2015-9 was 2.6 per cent, (best in 2017), with employment growing at about half that rate (Figure 5). Per capita GDP growth averaged about 1½ per cent; this was better than the euro area, but not as good as Denmark, for example, or for the average of the comparator small open economies. (Adding 2020 brings the average down to 1.7 per cent.) There were occasional patches of weakness in 2016, 2018 and 2019.

Figure 5 GDP annual growth rate Sweden and selected countries 2013-2021

Annual percentage change

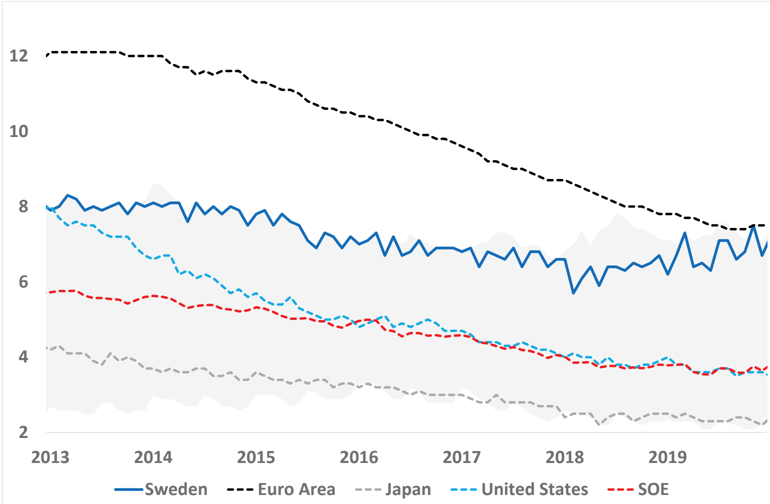


Note: SOE is the average of the set of comparator small open economies and consist of Czech Republic, Denmark, Israel, New Zealand, Norway, Sweden and Switzerland. The red dotted lines represent the maximum and minimum outcomes of these countries.
Sources: Czech Statistical Office, Eurostat, Israel Central Bureau of Statistics, Japanese Cabinet Office, Statistics Denmark, Statistics New Zealand, Statistics Norway, Statistics Sweden, Swiss State Secretariat for Economic Affairs and U.S. Bureau of Economic Analysis.

Unemployment averaged 6.8 per cent 2015-2019 and ended that subperiod less than 1 percentage point lower than at the start, there having been some reversal in 2019. This was a much slower reduction than in the euro area, and less than the average of the small open economy comparators, but about the same as that in Denmark (where, however, the average rate of unemployment was just over 4 per cent) (Figure 6). Immigration of asylum seekers was a contributory factor in slowing the reduction of unemployment, because of the difficulty which many of the recent immigrants have had in the labour market (Figure 7).

Figure 6 Unemployment rate, Sweden and selected countries 2013-2019

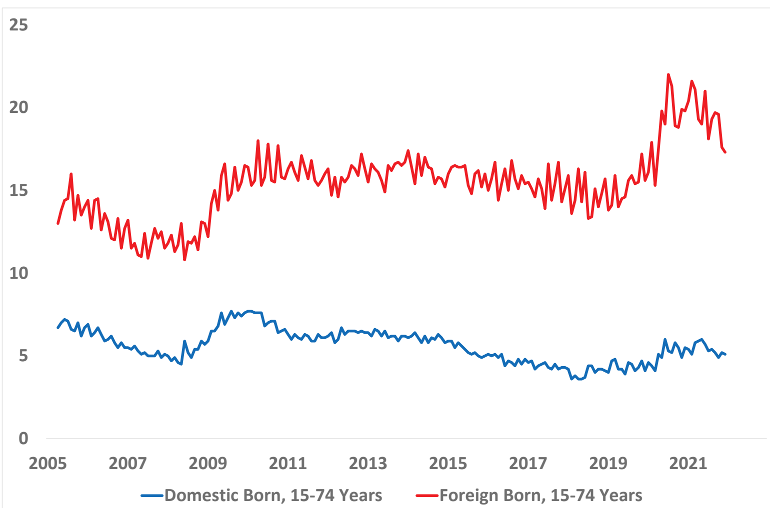
Per cent



Note: The shaded area represents the range of outcomes among the set of comparator small open economies: Czech Republic, Denmark, Israel, New Zealand, Norway, Sweden and Switzerland. SOE is the average of these countries.
Sources: Czech Ministry of Labor & Social Affairs, Eurostat, Israel Central Bureau of Statistics, Japanese Statistics Bureau, Norwegian Labour & Welfare Administration, Statistics Denmark, Statistics New Zealand, Statistics Sweden, Swiss State Secretariat for Economic Affairs and U.S. Bureau of Labor Statistics.

Figure 7 Unemployment rate, domestic and foreign-born 2005-2021

Per cent

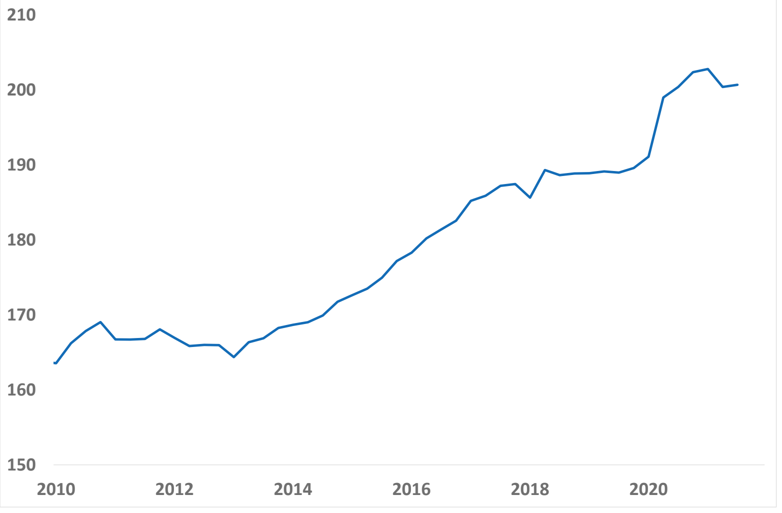


Source: Statistics Sweden

The emergence of the pandemic resulted in Sweden, as elsewhere, in a sharp decline in aggregate economic activity from March 2020 and a jump in unemployment, as well as in a sharp decline in inflation. However, Sweden experienced a more modest decline in GDP than most advanced economies, but its unemployment rate, which was higher than in most advanced economies at the eve of the pandemic, rose more sharply. Inflation dipped in early 2020, but recovered rapidly and was back at close to 2 per cent (1.7%) by January 2021.

It is also worth noting that household debt — already at record levels and growing rapidly at the start of 2016 – plateaued at around 190 per cent of annual disposable income from 2017 to 2020 (Figure 8). Housing prices followed a somewhat similar path (Figure 9).

Figure 8 Household debt as percentage of disposable income



Source: Statistics Sweden

Figure 9 Real house prices 2015-2021

Index, January 2015=100

Note: House prices deflated by CPIF.
Sources: Valueguard and Statistics Sweden

The current account of the balance of payments, which had been running at over 5 percent of GDP in 2013-2014 dipped to below 3 per cent 2017-2019.

1.3 Measurement of Inflation

Different Measures of Underlying Inflation

Concern in previous years about the measurement of inflation in Sweden abated during the past few years. Despite the fact that the Riksbank has listed at least seven different series measuring inflation to which it pays attention, the focus of this debate had been the treatment of owner-occupied housing costs in the CPI (cf. Figures 1 and 2).

Several quite different approaches to measuring the housing costs of owner occupiers are used around the world. The European harmonized index HICP, which is used by the ECB as its target variable, excludes most of the housing costs of owner-occupiers. The approach Sweden uses for its CPI (applying a current mortgage rate to a long moving average of house prices) means that a reduction in the Riksbank policy rate (which is expected to boost inflation) mechanically reduces the CPI. This means that movements in the policy rate introduce a degree of volatility in the CPI that can mislead about the thrust of policy. To look through this problem, the Riksbank had long tracked CPIF as an important measure of underlying inflationary trends. Following discussion, CPI was replaced by CPIF as the formal target of monetary policy in October 2017. In practice, the modest interest rate movements in the period under review mean that this change has had little actual effect to date.

Measuring Inflation in the Pandemic Years

As in all countries, the pandemic years have seen a sizable shift in the composition of consumer purchases, reflecting the constraints on consumption of a wide variety of goods and services, especially those involving human contact. Using 2018 consumption weights to construct the 2020 CPI could mislead, and ad hoc revisions to the methodology have been necessary. From the point of view of monetary policy, it would seem reasonable to pay little attention to the dip in measured inflation in 2020 in setting policy for 2021 and beyond. A forward-looking monetary policy strategy would look through transient pandemic effects.

1.4 Reviewing the Inflation Target

In recent years there have been suggestions by distinguished scholars in several countries (see, for example, the cases cited in Gagnon and Collins 2019) that 2 per cent is too low a target for inflation given the heightened frequency with which nominal policy rates hit or approach their lower bound. Whatever are the merits of such suggestions, it would be a mistake for a small open advanced economy like Sweden to adopt an inflation target that is markedly different from that of its major trading partners, especially because of the continuous pressure that would be placed on the exchange rate.

Another recent suggestion in international discussions focuses on whether an overshoot of the target should be tolerated to compensate for undershooting attributable to having reached the lower bound of the policy rate (Bernanke 2017). Indeed, a degree of overshooting is now envisaged in the announced strategies of both the Federal Reserve and the ECB (Powell, 2020; European Central Bank 2021; Reichlin et al. 2021). To date, the precise implications of these new formulations remain somewhat vague, though it is clear that there is no intention to aim for an average inflation rate of more than 2 per cent over the medium term. Cumulative inflation in Sweden did not fall as far below 2 per cent in the past five years as happened in the euro area. Accordingly, this problem may not be as acute for Sweden. Nevertheless, the implication that euro area policy may become more expansionary needs to be borne in mind, and the Riksbank will need to ensure that its announced policy framework does not systematically neglect the new policy environment risking an unwanted appreciation of the SEK as a result. Overshooting of inflation beyond the 2 per cent target for some time is consistent with the current framework that includes the variation band of +/-1% around the 2 per cent target.

Chapter 2 The Operation of Monetary Policy 2015-2019

This chapter reviews the monetary policy measures adopted by the Riksbank in the period 2015-2019.

The five pre-pandemic years can be divided into two quite distinct phases, as far as the use of policy instruments is concerned.

2.1 Phase A 2015-2018

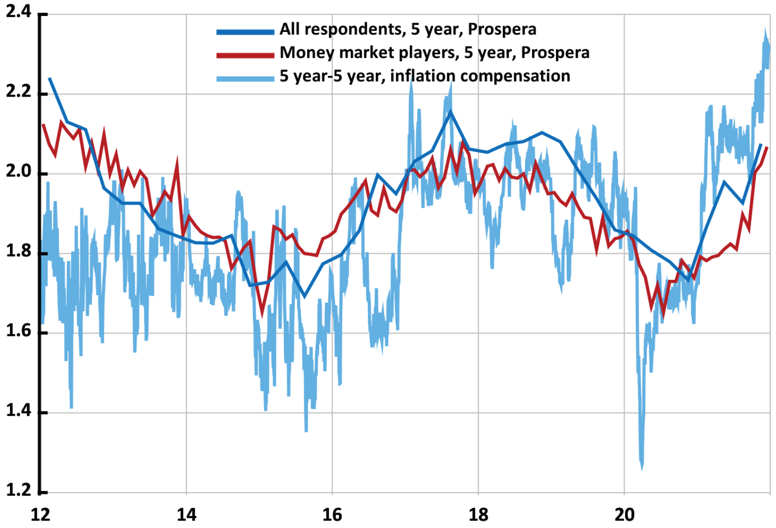
During this phase, the end of the Riksbank's previous tendency to "lean against the wind" of asset price excesses was confirmed; and the accommodating stance of monetary policy was reinforced by the response to ECB's QE and the further lowering of the ECB deposit rate, which had already moved into negative territory.

Negative interest rates came to Sweden in early 2015.[9] In February of that year, the ECB moved towards its long-awaited asset purchase programme, representing the most far-reaching easing of its monetary policy to that point. In response, the Riksbank, which had been gradually lowering its repo rate from 2 per cent in late 2011, decided on a further 10 basis point reduction making repo negative for the first time ever. Two further reductions were announced in the first half of 2015 (one of them following an unscheduled meeting in March), bringing the rate to -0.35 per cent, and it was further reduced to an all-time low of -0.50 per cent in early 2016. This easing can be best understood against a background in which not only was actual CPI inflation (which had been running at or below zero for more than two years 2012-2014 – partly depressed by falling energy prices) undershooting the target, nor only that the financial market's inflation expectations (as measured by the 5y5y inflation compensation) was still around only 1.6 per cent, but also the very relevant consideration that the ECB was continuing to lower its deposit rate, which fell to –.40 per cent in March 2016 (Figures 10, 11).

[9] The Riksbank's deposit rate had been negative earlier in the crisis, but this rate has not been significant in transmitting monetary policy since the Riksbank is active in mopping up excess liquidity in the interbank market at rates close to repo.

Figure 10 Inflation expectations

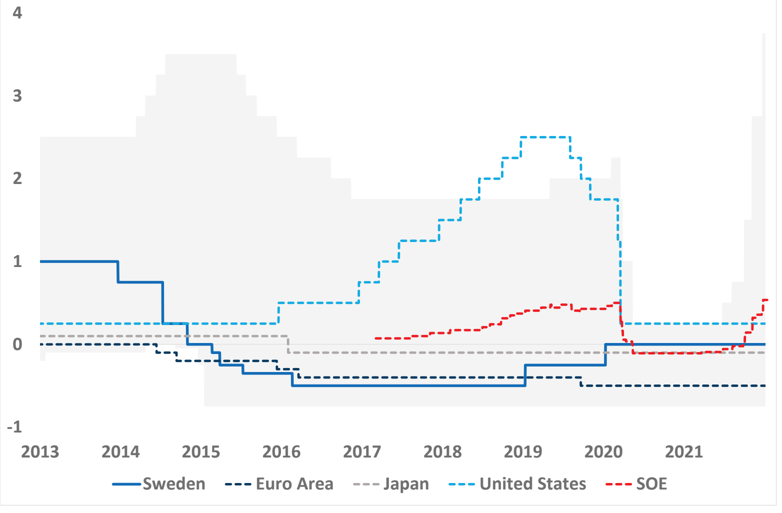
Annual percentage change



Sources: Kantar Sifo Prospera and the Riksbank

Figure 11 Main monetary policy rates in Sweden and selected central banks 2013-2021

Per cent



Note: The shaded area represents the range of outcomes among the set of comparator small open economies: Czech Republic, Denmark, Israel, New Zealand, Norway, Sweden and Switzerland. SOE is the average of these countries.
Sources: Bank of Israel, Bank of Japan, Bank of Norway, Central Bank of Denmark, European Central Bank, Federal Reserve, National Bank of Switzerland, National Bank of the Czech Republic, Reserve Bank of New Zealand and the Riksbank.

The generally expansionary stance was supported by QE purchases of government bonds, albeit in gradually diminishing amounts until 2020.

Although CPI inflation remained close to zero during 2015 despite the aggressively expansionary interest rate policy, it picked up during 2016. (CPIF inflation, which had not fallen as low as that in CPI, also increased in 2016).

2.2 Phase B 2019

With inflation returning to target – briefly exceeding it for parts of 2018 and 2019, thanks to a resurgence of energy prices – the need for extraordinary easing was no longer felt to be so pressing. The two further repo rate changes that occurred in our six-year review window happened at the beginning and end of 2019. The rate was increased to -0.25 per cent in January 2019 (announced in December 2018), with the accompanying Riksbank forecast indicating that further regular increases were to be expected, the next one in the second half of 2019 with the repo rate likely to pass +0.50 per cent by end-2020. However, the other increase (to zero) did not happen until January 2020 (announced in December 2019) and had then been accompanied by a Riksbank expectation that further increases would not occur for another six quarters or so.[10] The fact that the ECB had further lowered its deposit rate to -0.50 per cent in October 2019 was a likely contributing factor to the slowdown in rate normalization.

Thus, the negative interest rate policy was abandoned. The Riksbank was the last of the five central banks around the world to go negative and the first to exit. Why? Can this pattern be explained by the time-path of Sweden's inflation and macroeconomic evolution, or did it reflect structural differences or a different approach to monetary policy choices?

Take inflation first. Average CPIF inflation was 1.7 per cent in 2019 (and fell in the first two months of 2020). Furthermore, neither market compensation nor professional ("money market players") forecasts around the end of 2018 indicated an expectation that medium-term inflation would be above 2 per cent.[11] And by the end of 2019, the Riksbank's own end-2019 forecast was for CPIF to remain below 2 per cent for the following three years.[12]

How about the evolution of unemployment: did it point strongly to a need for tightening? A sharp fall in unemployment during late 2017 and early 2018 (to just below 6 per cent) was followed by a return to higher (and upward trending) unemployment later in 2018: by the end of 2019, unemployment, at 6.7 per cent, was only about ¾ percentage point lower than it had been at the end of 2014 and above the levels it had reached in 2007-2008 before the GFC (Figure 6).

[10] The policy rate corridor, which had been at +/- 75 basis points around the repo rate, was narrowed at the end of October 2019 so that the deposit rate was just 10 basis points below repo, with the standing facility lending rate still 75 basis points above. The corridor was further narrowed in 2020.
[11] At that point CPIF and CPIF excluding energy were forecast to reach 2 per cent in 2021 (Figure 10).
[12] Household expectations continued to be much higher than that of businesses or financial professionals, and much higher than actual inflation.

Comparator countries saw much greater improvement in unemployment in those years. Neighbouring Finland saw the unemployment rate falling by 2.4 percentage points and the euro area as a whole by 4 percentage points (note that both of these had had much higher unemployment rates at end-2014). The decline in unemployment in the United States was 2.0 percentage points and in the United Kingdom 1.8 percentage points. Even in Denmark and Norway, which began the period with unemployment at only 4.8 and 2.7 percent respectively, there were declines of 1.1 and 0.5 percentage points respectively. The consensus view among Swedish economists appears to be that resource utilization and the level of employment were high in 2019, and that the relatively high unemployment rate reflects primarily the structural challenge of absorbing immigrants lacking the appropriate skills into employment. However, this view seems inconsistent with the mild — but clear — upward trend of unemployment rate among Swedish-born since early 2018 (Figure 7). (An additional complication relates to the reliability of the various data sources on unemployment and labour force participation. There were significant data revisions and continuing question-marks over the reliability of some of this data.)

Although the large immigration of persons unused to Swedish economic conditions was a factor in Sweden's underperformance in getting unemployment down, and although this clearly poses challenges to government policies aimed at upgrading and adjusting skills to facilitate the integration of immigrants into the labour market, this factor itself suggests perhaps that the economy needed to be run "hotter" for a while to enhance opportunities for labour market integration of less skilled or experienced would-be workers. More focused micro-based research would be needed to assess the degree to which running the economy hot would help less skilled workers.

Thus, neither price, output nor employment developments strongly pointed to a need for tighter monetary policy in 2018-2019. Nor did overall output prospects point in any different direction. Indeed, the Riksbank's forecast at end-2018 of GDP growth in 2019-2020 was below 2 per cent per annum.

Consistent with this perspective, both the rate increase decision in December 2018 and the announcement in September of the following year that a further increase was to be expected within six months came as surprises to financial market participants (De Rezende and Ristiniemi 2020).

It thus seems that the decision to start increasing the policy rate was more prompt than would have been chosen by other leading central banks, to judge from their current policy statements. For instance, the ECB has declared its intention not to increase rates "until it has seen the inflation outlook robustly converge to" its target. Even more so, the US Federal Reserve now states that "following periods when inflation has been running below 2 per cent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 per cent for some time." Although it is only in 2020 that the Fed has moved to this policy – which is in the direction of something like average inflation targeting, the Riksbank's action in 2018-2019 to tighten at the first indication that prices were rising at around 2 per cent seems tilted to the hawkish end of current policy stances elsewhere.

All in all, the tightening of policy in 2019 might be considered somewhat premature. (Still, there was a modest increase in QE purchases during 2019, which somewhat offset the repo rate tightening).

It is hard to avoid the impression that being in a negative interest rate environment was felt to be uncomfortable by the Riksbank. Although official statistics indicate that deposit interest rates remained for the most part positive throughout, negative customer deposit rates were quoted for some corporate customers. The Riksbank was especially concerned that persistence of the negative policy rates would eventually transmit to negative household deposit rates, which was seen as a development likely to undermine public support for the Riksbank's measures; banks were understood to be making plans in that direction.

The external value of the krona may have been an additional consideration. Earlier concerns about potential overvaluation had likely receded. Indeed, the continued depreciation of the currency had led to a public perception (in some circles) of wider economic weakness which, despite the fact that this was not the case, was seen by some as weakening public support for the Riksbank's policy stance.

Could the Riksbank have done better in the 2015-2019 period? This overview suggests that, although the response of inflation and unemployment to the relaxation of policy during 2014 and 2015 was a good result, and far superior to that achieved in the previous few years, the Riksbank could have achieved a somewhat better development by refraining from the tightening adopted from end 2018. Inflation would probably not have accelerated significantly and the added demand pressure would likely have resulted in a somewhat better unemployment outturn.

2.3 Conduct of Deliberations

While there were clear differences in the Riksbank Executive Board, the frequency and persistence of dissent was lower in the period under review than in the previous five years (12 dissents in the six years 2015-2020 as against 42 in the five years 2010-2014 – an average reduction of four-fifths). The animosity of debate also seems to have been lower than reported for the previous review. The pattern of dissent has been fairly consistent with at most one or two persons dissenting in favour of higher rates at any of the meetings in 2015-2018 and one or two in favour of lower rates 2018 and 2019. The identity of the dissenters was stable.[13]

[13] On rates, Ohlsson dissented against the lowering decision at the July 2015 meeting; at the February 2016 decision to lower repo to -0.5 was again not unanimous, with Flodén and Ohlsson dissenting. The next dissent was in 2018: throughout that year Ohlsson advocated raising the repo rate and he was joined by Flodén in October. When the rate increase was decided at the November meeting, Jansson dissented in favour of no change. Jansson again dissented from the final rate increase (to zero) in December 2019, and was joined in this by

A typical monetary policy meeting cycle occurs over about five weeks or so: during the first two of which the Executive Board discuss briefings on recent developments in the Swedish economy (including the staff "nowcast") and financial markets and in the international economy, before proceeding to the likely evolution of economic activity in Sweden and the prospects for wages and prices. Staff prepare draft forecasts and policy options before these are taken to the Executive Board where they are debated and revised. While staff proposals are key inputs, is clear that the majority view of the Executive Board is ultimately decisive and does not always coincide with the proposals made by staff. About four weeks into the process the Monetary Policy Report is finalized several days before the formal and minuted Monetary Policy Meeting is held. The latter meeting begins with presentations by the Heads of the Markets and Monetary Policy Departments before the members of the Executive Board express their opinions. Like the US Federal Reserve Open Market Committee, but unlike the ECB Governing Council, each meeting is attended by a sizable group of staff experts — typically around 20 in number — as well as one or two members of the Riksbank's General Council and occasionally one or two observers from other central banks. While this large audience for the main meeting, and the detailed quasi-verbatim nature of the minutes, might suggest a degree of formality in the decision-making process, it is clear that the preparatory meetings involve a lively interaction among the members of the Executive Board and between them and staff. The forecasts contained in the Monetary Policy Report are adopted by the Executive Board rather than being staff forecasts as is the case for the ECB. The Executive Board are clearly in control of the deliberations, rather than being strongly steered by staff.

2.4 The Communications Regime

Central banks need to communicate in a wide range of ways, channels, levels of depth and specificity. Like most central banks in recent years, the Riksbank views its communication as an important strategic tool towards its policy objectives. This is reflected in the documents it has been issuing periodically, explaining the aim and objectives of its policy and the strategy it follows. Riksbank communication has several target audiences. These include:

- the Riksdag, the main body to which it is accountable;
- the traditional and social media commentators, which help to transmit and interpret the messages;
- the financial markets, whose expectations regarding future policy actions strongly influence asset prices beyond those directly controlled by the Riksbank;

new member Breman. There were some differences also on asset purchase decisions with the same dramatis personae augmented by Skingsley.

– businesses and trade unions who base their strategic and negotiation objectives on expectations of future price and demand conditions;
– and the general public, in whose interest Riksbank policy is directed.

Internal staff communication and a strong link with professional researchers are other important dimensions.

Regarding monetary policy, clear and credible communication has been long recognized by central banks as a policy tool, as it helps shape expectations and thus makes monetary policy more effective; the Riksbank is no exception.

The documents and public appearances communicating monetary policy by the Riksbank are clear, including in terms of language, open, transparent, and well suited to the wide range of target groups. The quality of its communication, and in particular its transparency, stands out among its peers. This is reflected in the Riksbank receiving the highest ranking in the Central Banks Transparency Index.[14] Its outstanding transparency was also recognized by the *Central Banking* magazine which awarded the Riksbank the Annual Transparency Award in 2014.[15]

Inasmuch as influencing expectations is a key goal of central bank communications, the accuracy of its macroeconomic forecasts is clearly vital.

2.5 Accuracy of Forecasts

In preparing for each monetary policy meeting, Riksbank staff apply a suite of econometric models as well as informal judgment. Short-term dynamics of different economic variables are modelled using about a dozen time series models and these help in guiding the Riksbank's short-term forecasts. However, these seem to be based as much, if not more, on an eclectic synthesis of expert opinion at the Riksbank.

For medium-term projections and policy simulations, the two main modelling tools are:

i. A dynamic structural general equilibrium (DSGE) model called MAJA (Corbo and Strid 2020), which is the latest generation of structurally similar models that have been used at the Riksbank since about 2005. It draws on long-standing behavioural assumptions about relationships among 15 Swedish and 10 foreign data series. These series cover: GDP, aggregate consumption and investment spending; CPI and wage inflation; employment and unemployment; and two interest rates. Constantly being refined,

[14] Cf. Oikonomou, and Spyromitros (2017), who updated the central bank transparency index of Eijffinger and Geraats (2006) covering political, economic, procedural, policy and operational transparency. Using data from 2011-2016, the Riksbank was the only central bank scoring a perfect score of 15, up from 14.5 in 2014.

[15] The award committee stated that: "Of the pioneers, though, Sveriges Riksbank is the one that continues most determinedly to break new ground in ensuring its processes and decision making are transparent and clearly communicated through whichever channel is most effective." https://www.centralbanking.com/central-banking-journal/feature/2307735/transparency-award-sveriges-riksbank

the magnitudes of the model's parameters have been estimated using Bayesian estimation on quarterly data since 1995.

ii. A Bayesian vector auto-regressive model (BVAR) using somewhat fewer variables. This type of model relies less heavily on economic theory and more on the statistical relationships between the different variables.

Both of these models sit squarely in a tradition which represents internationally accepted good modelling practice for central banks. Of course, they do not claim to capture all relationships. For example, DSGE models have been criticized for having been unable to foresee or track the kinds of influence between financial and real sectors that were so important in the Global Financial Crisis. Nor do they cope well with tracking economic developments in the years of pandemic. But these limitations are fully recognized by Riksbank staff and Executive Board members. The latter do not lean too heavily on the models in coming to their decisions on policy and on the published medium-term forecasts, often substituting informal judgment not only when the models disagree, but especially when conditions prevail that are not thought to be well-captured by the models. Indeed, this has long been the case, as is documented in Lindé and Reslow (2017).

In its Monetary Policy Reports, the Riksbank publishes a forecast path for macroeconomic variables such as GDP, inflation, the SEK exchange rate and for its own policy rate. During the period under review, the accuracy of these forecasts was not particularly high, but nor did it fall below that of the median external forecaster (cf. Sveriges Riksbank 2021). Commentators continued to complain that the Riksbank's inflation forecasts tended to converge to the target over a period of several years, but in fact the inflation forecasts did improve relative the previous five years, and this kind of deviation was not unusual among other central banks in the same period.[16]

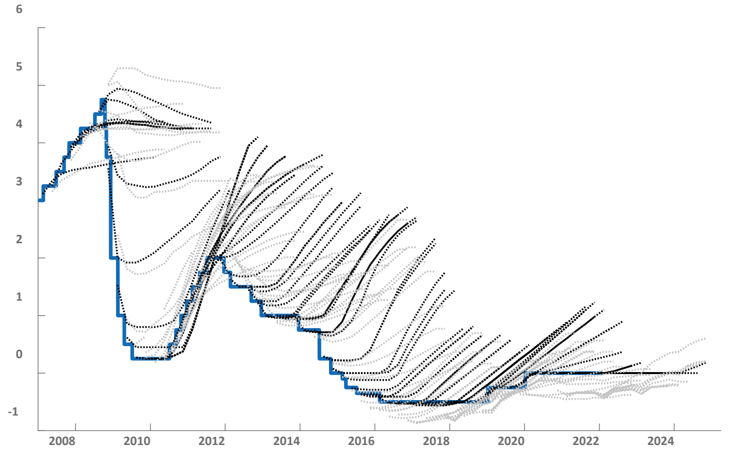
A distinction is usually made between forecasts of a central bank's own policy rate (and other tools) and its forecast of the rest of the economy. The former is often termed "forward guidance." As the Riksbank has often emphasized, its announced policy path is a forecast of the policy rates it believes to be consistent with its wider expectations for the economy as a whole and with its objective for inflation.

Thus, this is what is sometimes called "Delphic" forward policy guidance; indicating what is likely to happen rather than setting out a promise or a commitment (which would be "Odyssean" forward guidance). The policy path forecast has not been at all realized in recent years. This is illustrated in Figure 12 which shows that the deviation between forecast and subsequent realization continued to be very wide until 2020, albeit somewhat narrower than in the previous five years. As in other countries, market forecasts of interest rates were not accurate either; the question, though, is whether or not announcing a forward path helps the Riksbank in its task.

[16] For example: "the ECB tends to overpredict (underpredict) inflation at intermediate forecast horizons when inflation is below (above) target" (Granziera et al. 2021)

Figure 12 The Riksbank's repo rate forecasts 2007-2021

Per cent



Note: The blue line is the repo rate, the black dotted lines are forecasts by the Riksbank and the grey dotted lines are market forecasts as quarterly averages at announcement dates. The market forecasts, as well as Stibor, are more volatile around the turn of the year since 2016, when the resolution fee was introduced.
Source: Following Åhl (2017). We are very grateful to Dr. Magnus Åhl for agreeing to bring his calculations up to date for presentation here.

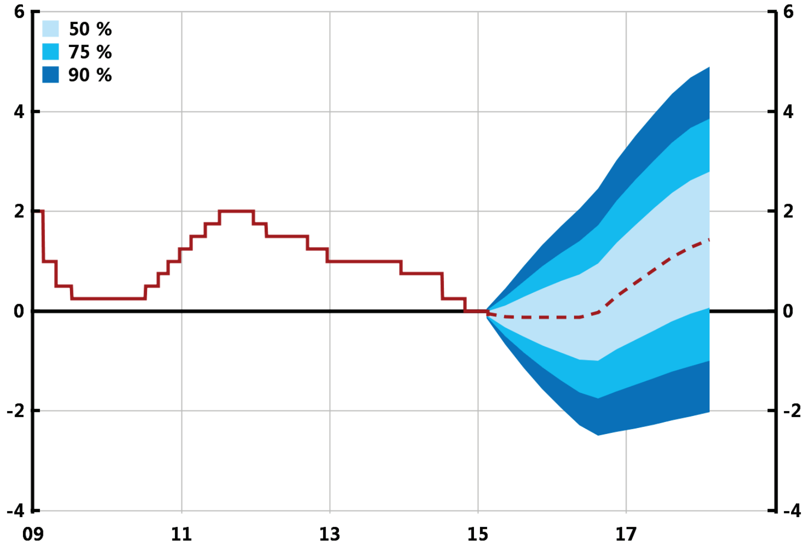
The financial market generally continues to behave as if it attached relatively low precision to the Riksbank's path. Thus, in econometric research based on earlier years, it appeared that "the response of market expectations to a surprise in the announced repo-rate path is not one-to-one, but is estimated to be less than half of the surprise and decreasing in the forecast horizon" (Åhl, 2017).[17] It may be noted that both the credibility and the accuracy of the Riksbank's forward guidance was much higher in the first couple of years of its operation (Svensson 2015).

Furthermore, the uncertainty fan-chart bands published by the Riksbank to accompany the point forecasts were so wide as to be virtually useless. For example, in early 2015 the fan chart implied that the betting odds against a repo rate lower than -200 basis points (bp) by mid-2016 was only 10-1; a similar odds was implied for repo rate higher than +400 bp (Figure 13). With this experience, the guidance path has limited value in anchoring expectations, and should be seen mainly as just one element in the Riksbank's macroeconomic projections. The wide margin of error bands presented by the Riksbank around the path help to ensure that it will not be misunderstood as a firm promise. Forward guidance issues arose again in 2020, as is examined in Chapter 2. The overall effectiveness of forward guidance is further discussed in Chapter 4.

[17] Indeed, as with many other countries, firms and households typically attach much weight to current inflation in forming their expectations about future inflation (Candia et al. 2021).

Figure 13 Forward guidance on the repo rate

Per cent



Note: The uncertainty bands for the repo rate are based on the Riksbank's historical forecasting errors and the ability of risk-premium adjusted forward rates to forecast the future repo rate for the period 1999 up to the point when the Riksbank started to publish forecasts for the repo rate during 2007. The uncertainty bands do not take into account the fact that there may be a lower bound for the repo rate. Outcomes are daily rates and forecasts refer to quarterly averages.
Source: Riksbank Monetary Policy Report February 2015

Chapter 3 The Response to the Pandemic

Over a matter of days in early March 2020 it became clear that the Covid-19 pandemic would have a severe economic effect across the world and that Sweden would not be exempt. Financial market turmoil spread from leading international centres, reflecting soaring uncertainty about future developments. Soon, large parts of economic activity were paralyzed by government-imposed restrictions and/or by consumers' avoidance of services involving person-to-person contact. Services such as tourism, hotels and restaurant were especially vulnerable, but before long a much wider range of sectors was affected. This resulted in a sharp decline in household incomes and business revenue. These in turn exacerbated liquidity shortages. The global economy was rapidly sliding into recession.

These developments called for a sharp and rapid response by governments and central banks to support incomes and maintain demand for services that could still be operated, to minimize and shorten the contraction of activity and employment, avoid a sharp decline in inflation and to avoid disruptions in financial markets. In Sweden, as in almost all advanced economies, the Government and the central bank responded accordingly. The prompt and decisive policy actions taken in Sweden helped to prevent an even more severe and prolonged recession, and to avoid a financial crisis.

3.1 Measures in Phase C

The Riksbank's initial response to these developments was a decision taken at an extraordinary meeting on 12 March approving actions aimed at alleviating the consequences of the pandemic on economic activity as well as avoiding a lasting effect on inflation, and maintaining financial stability: "Thus, the measures had the twofold purpose of maintaining financial stability and economic stability, including the inflation target" (Monetary Policy Account 2020). This necessitated ensuring that financial institutions had sufficient liquidity and that the flow of credit at low interest rates to households and business could continue in order to avoid an even greater contraction in consumption and activity, and to reduce financial stress. Given the widespread scramble for liquidity, massive bond sales by investors would have had disruptive effects had the Riksbank not stepped in with its purchases.

Specifically, while the repo rate was held at zero, the interest rate on the Riksbank's standing loan facility was reduced in two steps, and a wide range of unconventional policy instruments introduced (see Table 1).[18] These measures included:

[18] The standing facility rate was reduced from 0.75 per cent to 0.20 per cent on 18 March, and further 0.10 per cent on 8 July, from which date the interest rate corridor became +/- 10 basis points.

- greatly expanded asset purchases, not only government bonds and Treasury bills, but also covered bonds, municipal and corporate bonds and commercial paper;
- provision of liquidity in krona, while easing collateral requirements, and in US$, to banks;
- funding for on-lending to non-financial institutions.

Table 1 Measures taken by the Riksbank during the Covid-19 crisis

Measure	Scope *(Purchased/utilised so far up to 5 February)*	Aim
Funding for lending programme	Up to SEK 500 billion *(SEK 164.5 billion)*	Support credit supply to non-financial corporations.
Envelope for the Riksbank's asset purchases	Purchase programme lasts until 31 December 2021. Envelope amounts to SEK 700 billion. **Purchases 2021 Q2: SEK 90 billion in bonds and SEK 10 billion increased holdings of treasury bills** *(SEK 345 billion, excluding commercial paper)*	Contribute to low interest rates throughout the economy and a smoothly functioning credit supply, and in this way create favourable conditions for the economy to recovery and inflation to rise towards the target.
- *Purchases of government bonds*	**Purchases 2021 Q2: SEK 12 billion** *(SEK 50.7 billion)*	
- *Purchases of municipal bonds*	**Purchases 2021 Q2: SEK 15 billion** *(SEK 49.3 billion)*	
- *Purchases of covered bonds*	**Purchases 2021 Q2: SEK 60 billion** *(SEK 238 billion)*	
- *Purchases of treasury bills*	**Purchases up to holdings of SEK 20 billion as of 30 June 2021** *(Holdings: SEK 3 billion)*	
- *Purchases of corporate bonds*	Purchases up to SEK 10 billion up to 30 June 2021 *(SEK 4.4 billion)*	
- *Purchases of commercial paper*	**Purchases up to SEK 32 billion up to 30 June 2021** *(Holdings: SEK 0.4 billion)*	
Interest rate in standing loan facility cut	Cut from 0.75 to 0.10 percentage points above the repo rate.	Ensures that the overnight rate on the market for Swedish krona is close to the repo rate. Makes it cheap for the banks to get access to overnight loans.
Weekly market operations whereby banks are offered loans against collateral at three and six months maturities at the repo rate.	Unlimited *(SEK 28.7 billion)*	Strengthen the banks' access to liquidity in Swedish kronor to facilitate their funding and their role as suppliers of credit to Swedish companies.
Eased collateral requirements when borrowing from the Riksbank	—	Reinforce the banks' access to liquidity in Swedish krona.
Loans in US dollars	Up to USD 60 billion *(USD 2 billion)*	Reinforce access to liquidity in US dollars in the Swedish financial system.

Note. Municipal bonds refers to bonds issued by Swedish municipalities, regions and Kommuninvest i Sverige AB. All of the bases for the decisions on various measures can be found on the Riksbank's website https://www.riksbank.se/en-gb/press-and-published/updates-on-the-riksbank-and-the-coronavirus-pandemic/the-riksbanks-measures-in-connection-with-the-corona-pandemic/.

Source: Monetary Policy Report February 2021

This set of unconventional measures used by the Riksbank during 2020 was similar to the set used by other central banks in the major advanced economies and in the comparator SOEs (Table 2). The decision not to lower the policy rate back into negative territory was common to the other advanced SOEs as well as the UK and the US, while the ECB, Denmark, Switzerland and Japan maintained their negative policy rates. The asset types purchased by the Riksbank spanned a wider range than that in most other comparable central banks, notably in its inclusion of commercial paper and other private assets.

Table 2 Measures taken by the Riksbank and other central banks during the Covid-19 crisis

Tool type	Measures	**Sweden**	Canada	Chile	Czech Republic	Denmark	Euro area	Israel	Japan	New Zealand	Norway	Switzerland	UK	US
Interest rate	Policy rate cut		√	√	√			√		√	√		√	√
Lending operations	Liquidity provision	√	√	√	√	√	√	√	√	√	√		√	√
	Targeted lending	√		√			√	√	√	√		√	√	√
Asset purchases	Government bonds	√	√				√	√	√	√			√	√
	Commercial paper	√	√				√		√				√	√
	Corporate bonds	√	√				√	√	√				√	√
	Other private	√	√	√			√		√					
Foreign exchange	USD swap line	√	√			√	√		√	√	√	√	√	
	Swaps			√				√						
	Spot inter-vention			√	√							√		
Reserve policy	Remunera-tion									√		√		
	Requirement ratio													√
	Compliance													
Negative interest rate						√	√		√			√		

Source: BIS –A global database on central banks' monetary responses to Covid-19 (2021).

Policy Rates

The decision not to lower the repo rate back to the negative territory that it had occupied until just a few months before is discussed in greater detail below. Nevertheless, as mentioned, the rate on the Riksbank's standing loan facility was reduced (resulting in a narrowing of the policy interest rate corridor to +/- 0.1%).

Riksbank Lending

In order to strengthen the banks' access to liquidity in local currency as a way of facilitating their funding and their role as credit providers for Swedish companies, the Riksbank offered unlimited 3- and 6-month collateralized lending at the repo rate on a weekly basis (and with relaxed collateral rules). Given that the Swedish banking system usually operated with a liquidity surplus (apart from a two-year period 2008-2010), it is notable that immediate take-up of this facility was over SEK 20bn, later rising to SEK 32bn.

In addition, in order to support credit flow to non-financial corporations, a special liquidity program for a wider range of credit institutions (including savings banks and a finance company) to fund their lending to corporate borrowers was also introduced. (This was dubbed the "funding for lending scheme" by reference to somewhat similar schemes that had in the past been introduced elsewhere[19]). This provided collateralized lending at the repo rate. It quickly attracted a sizable SEK 143bn of usage out of a programme envelope of SEK 500bn.[20]

As part of its suite of measures designed to stabilize US and international financial markets, the US Federal Reserve offered the Riksbank a US$ 60bn swap line on March 19. The Riksbank in turn offered a US dollar lending facility to banks. In the event, only US$ 2bn was lent through this facility, and that was actually financed from the foreign currency reserves rather than from the Fed swap. [21] The swap line was extended on two occasions and continued to apply into 2021.

[19] Specifically the UK Treasury and Bank of England 2012 Funding for Lending scheme designed to boost bank lending to households and to the private non-financial corporate sector https://obr.uk/box/the-funding-for-lending-scheme/ ; the ECB's 2014 Targeted Longer-Term Refinancing Operations (LTRO) designed to boost bank lending to households (other than for residential mortgages) and private non-financial corporates https://www.ecb.europa.eu/mopo/implement/omo/tltro/html/index.en.html and the ECB's 2019 introduction of tiered deposit rates for banks whereby each bank can avoid negative rates rates for some of its deposits at the ECB https://www.ecb.europa.eu/mopo/two-tier/html/index.en.html)

[20] If onward lending to corporations was not achieved, a penalty of 20 (later 10) basis points applied. The banks retained the credit risk. Usage peaked at SEK 165bn in July 2020, where it remained until early 2021, after which there was a substantial decline.

[21] The banks repaid these loans by June 2020. There was no demand for dollars at the minimum price (OIS+25bp) in the three subsequent auctions offered by the Riksbank during April (cf. Gislén et al. 2021).

Asset Purchases

The rapidly deepening financial market crisis during March necessitated a swift and large-scale asset purchase response. QE purchases were greatly accelerated and extended to covered, municipal and corporate bonds. This broadening of the scope of asset purchase partly reflected the fact that the Riksbank already held close to 45 per cent of the total stock of government bonds. In addition, though, there was the fact that the yield spreads on these instruments relative to Swedish government bonds were widening.[22] Thus, the package was intended to ensure that the disturbance would not increase term or risk premia across the yield curve.

The initial expansion was to municipal bonds, and soon covered bonds (the largest segment) was added. Covered bonds became by far the largest segment of the purchases, followed in size by government and municipal bonds (Figure 14). The price effect was significant: risk spreads on covered bonds narrowed sharply to lower levels than had prevailed in 2019 (Alsterlind 2021). With spreads continuing to widen for corporate bonds, the Riksbank announced they would also purchase commercial paper and corporate bonds with the intention of calming markets and releasing liquidity to SMEs.[23]

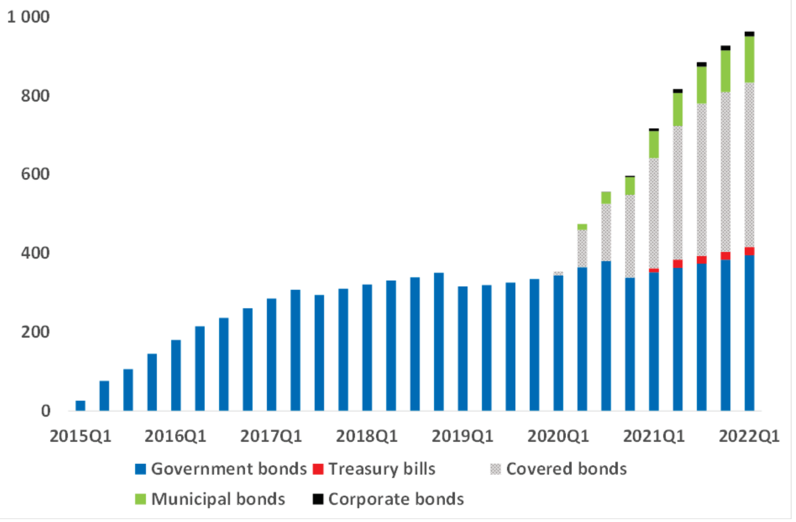
The total amount of assets held by the Riksbank in its asset purchase programmes jumped by about 70 per cent to over SEK 600bn by end-year 2020 (Figure 14). Relative to the size of the economy this was a smaller rate of increase than engineered by the Federal Reserve and the ECB. The additional QE conducted by the Riksbank was also smaller, bringing the stock from about 18 per cent of GDP to 26; whereas the ECB's stock reached 61 per cent of GDP and the Federal Reserve's 35 per cent of GDP. Increased asset purchases were employed by other central banks also, with an average increase in seven comparable smaller open economies, of about a third — from 39 to 49 per cent of GDP (Figure 15).

[22] Covered bond spreads peaked on March 16; the municipal bonds on March 20 and the corporate bonds on March 27.

[23] The Riksbank limited its purchases to investment grade bonds and tried to be proportional in the portfolio of corporate bonds it purchased. Starting January 1st 2021 the Riksbank further limits its bond purchases to companies deemed to comply with international standards and norms for sustainability.

Figure 14 Stock of bonds held by Riksbank as a result of QE

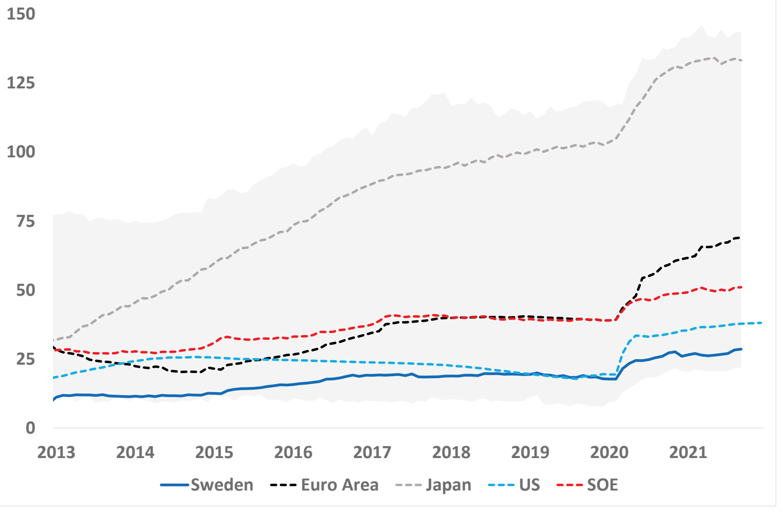
SEK billion



Source: The Riksbank

Figure 15 Scale QE Riksbank and selected central banks 2013-2021

Balance sheet totals as per cent of GDP



Note: The shaded area represents the range of outcomes among the set of comparator small open economies: Czech Republic, Denmark, Israel, New Zealand, Norway, Sweden and Switzerland. SOE is the average of these countries.
Sources: Bank of Israel, Bank of Japan, Bank of Norway, Central Bank of Denmark, Czech Statistical Office, European Central Bank, Eurostat, Federal Reserve, Israel Central Bureau of Statistics, Japanese Cabinet Office, National Bank of Switzerland, National Bank of the Czech Republic, Reserve Bank of New Zealand, Statistics Denmark, Statistics New Zealand, Statistics Norway, Statistics Sweden, Swiss State Secretariat for Economic Affairs, the Riksbank and U.S. Bureau of Economic Analysis.

3.2 Implications of the 2020 Decision to Hold Repo Rate at Zero

The decision not to reduce the repo rate was explained in several distinct ways. One important consideration discussed at the Executive Board was the fear that a return to negative repo rates might trigger a response by the banks to pass the rate cut on to depositors, thereby losing liquidity at a moment in the crisis where liquidity was already tight. Given the nature of the shock, it seemed more important to ensure that financial stability was maintained and that expanded liquidity demands were met (so that credit could continue to flow to households and firms) than to lower the wholesale cost of funds below what had prevailed pre-pandemic. A similar policy choice was made by most other comparable central banks.

The Riksbank may have been also concerned that its credibility could have been damaged by reducing the repo rate so soon after rising it in December 2019. The depreciation of the krona at the beginning of the crisis, in spite of the interest rate differential vis a vis the ECB, also reduced the urge to cut the policy rate.

However, the Riksbank have been at pains to stress that, under different circumstances, a negative rate would still be effective.[24] The Governor and board members continue to stress that negative repo rate was not off the table:

A sample of Executive Board member statements on continuing potential for negative repo rates.

"I would like to emphasize that I do not in any way exclude the possibility of a rate cut in the future" – Anna Breman (Minutes 27 April 2020).

"Consequently, I do not rule out the possibility that it can be motivated to lower the repo rate to negative levels once the economy has started to open up" - Martin Flodén (Minutes 27 April 2020).

"My view is that the conditions for repo rate cuts will improve when the rate of spread of the virus starts to decline and society gradually begins to open up" – Per Jansson (Minutes 27 April 2020).

"[A lower repo rate] may however become relevant at a later stage, when we reach a recovery phase that needs support" – Cecilia Skingsley (Minutes 27 April 2020).

"The repo rate can also be cut, if this is assessed to be a useful measure. At present, cutting the repo rate is not assessed to be the most effective tool to support the economic recovery. But this does not rule out such a possibility further ahead. There are several factors that are currently difficult to assess,

[24] For example, as discussed below, Riksbank analysis suggests that the pass-through from its policy rate to the lending rates to households and business is close to one-to-one (Erikson and Vestin 2021), despite the assertions of others to the contrary (cf. Eggertsson et al. 2019).

which will determine whether it is appropriate to cut the repo rate below zero once again. These factors include the development of the exchange rate, how fast the supply side of the economy recovers in relation to the demand side, and how a lower policy rate is assessed to affect interest rates in general and ultimately consumption and investment" – Riksbank Monetary Policy Report July 2020.

"If more monetary policy stimulus were to be required in the short term, the tools I see closest to hand are a negative repo rate and increased quantitative easing" (Speech by Anna Breman 23 February 2021).

3.3 Deliberations and Technical Preparedness

Despite the sudden and intense nature of the early phases of the pandemic crisis, and the complexities of frequently having to operate without physical meetings, the decision-making of the Executive Board during 2020 was smooth and effective. The Board held five ordinary meetings and five extraordinary meetings during 2020, and there were in addition eleven decisions taken ”by circulation" (written procedure). From the minutes of the Board meetings, it appears that policy discussions were much less confrontational than they had been in 2010-4; decisions during 2020 were taken with almost full consensus.

While the Board members agreed that expanding the scale and the scope of the QE was an effective way to react to the crisis caused by the pandemic, there was some controversy over the composition of the asset purchases, and over the November 2020 announcement of the extension of the programme.

The broader consensus shows up in the absence of disagreements regarding the policy rate decisions in 2020; with just two members expressing some reservations in November 2020 regarding the asset purchases.

The crisis of March 2020 served also as a real-time test of the Riksbank's crisis preparedness. How did the Riksbank shape up to this decision theory perspective on optimal policy? Overall, it seems that the organization was adequately prepared for such an extraordinary circumstance. The legal framework provided the necessary authority and sufficient flexibility in the use of vital instruments, without imposing delays or procedural obstacles. Internal procedures were readily adapted to allow rapid decision-making. The skills and experience of Executive Board and staff were sufficient to deal effectively with circumstances not envisaged in the standard models and analytical tools.

Turning decisions into action was challenging, given the novelty of some of the measures, especially related to technical aspect of expanding the purchases to corporate bonds. This did require a lot of preparation but was accomplished, although with a delay of about half-a-year. While the credible announcement of the policy of corporate bond purchases was sufficient in Sweden to narrow spreads well ahead of actual implementation, this might not have proved sufficient.[25] Six months is a very long time in the middle of a financial crisis. Considering that the ECB had been providing the example by purchasing corporate bonds since 2016, there would have been merit in the Riksbank preparing the operational requirements of such operations on a precautionary basis in case they were needed — as indeed they were in 2020.

3.4 The Economic and Inflation Outcome in 2020

Did the Riksbank do enough in the crisis? It seems so. In spite of initial financial stress, actions taken by the Riksbank (as well as by the Finansinspektionen and the National Debt Office) helped alleviate the liquidity shortage and ensure the flow of credit at a low interest rate, and thus financial stability was maintained.

Sweden experienced a more modest decline in GDP than most advanced economies in 2020. This surely reflects structural and fiscal and other policy differences, more than the working of the monetary policy measures, given that other central banks also adopted unusually vigorous measures. For example, analysts have pointed to the relatively modest economic importance of tourism in Sweden, to the relatively high share of the high-tech sector that enjoyed high demand during 2020, and to the somewhat less stringent restrictions imposed by the Swedish Government at the early stages of the pandemic, as well as to the effective fiscal and monetary policy response.

Inflation as measured by CPIF dipped at the initial stages of the crisis, and was below target (and below the variation band (1-3%)) until the end of the year when it recovered to 1.7 per cent by January 2021. A similar path of an initial dip and a recovery towards the end of 2020-beginning of 2021 was observed in the major economies and in the comparator countries (SOEs). The CPIF excluding energy averaged 1.3 per cent in 2020 while other core measures of CPIF were around 1-2 per cent. It should be noted that some measurement issues arise in some CPIF segments of services that were not consumed during the pandemic (e.g. entertainment and recreation, restaurants, air travel etc.).

Did the Riksbank perhaps do too much in the crisis, even threatening medium-term price stability? This would be hard to argue. More important for medium-term price stability than the actual price developments in 2020 is the impact on inflation expectations. Reflecting the credibility established by the Riksbank in its ability to bring inflation back to target, financial market expectations of long-term inflation recovered from a sharp dip early in the year to end 2020 at around 1.7 per cent. While the purchase of mortgage-covered bonds will also have had a side-effect in maintaining upward pressure on housing prices, it went no further in this regard than returning to the conditions that had been prevailing pre-pandemic.

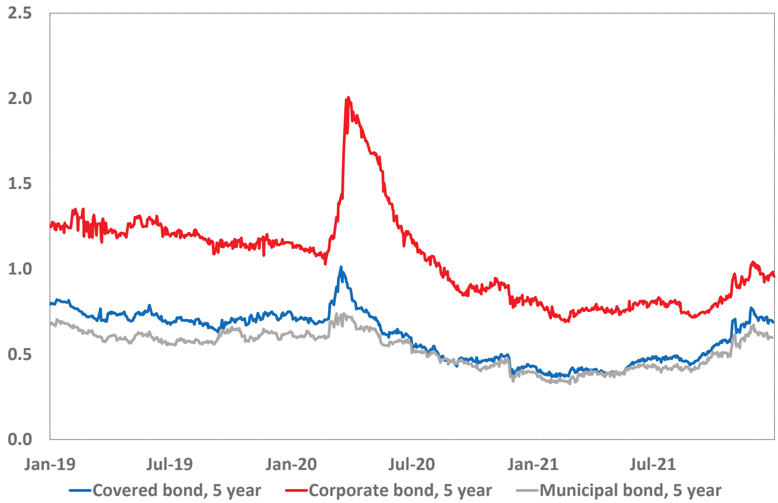
[25] For example, taming the panic in the US Treasury Bond market in March 2020 required actual purchases, and was not accomplished by the announcement alone (Vissing-Jorgensen 2021).

3.5 Persisting with the Broader Asset Purchase Programme

The complexities of building internal processes in order to implement a programme of corporate bond purchases meant that purchases in that segment were delayed until September 2020. By that time, spreads were already back to their pre-crisis levels, but the Riksbank felt the need to make good on its promise and go ahead with the corporate bonds purchases to maintain its credibility (Figure 16).

Figure 16 Yield spreads relative to Swedish Government bond

Percentage points



Sources: Bloomberg, Macrobond, Refinitiv and the Riksbank.

In a Press Release on 26 November 2020, the Riksbank announced that it would expand the bond purchases and extend the purchasing programme until the end of 2021 "To give further support in an uncertain time, improve the conditions for a recovery and help inflation rise towards the target of 2 per cent." In the Monetary Policy Account 2020, that decision is explained: "monetary policy would need to continue to be expansionary for a long time to facilitate the economic recovery and enable inflation to rise towards the target". Yet, with risk premia on corporate bonds down to below their pre-crisis level, the need to provide continuing support for this segment of the market was much less clear than it had been earlier in the year.

Chapter 4 The Impact of Unconventional Policy Instruments

This chapter considers the effect that negative interest rates, asset purchases (QE) and forward guidance – the so-called "unconventional" policy instruments – have had on the Swedish economy.

4.1 Zero and Negative Interest Rates

Previously known only in Japan, negative policy interest rates have been adopted in recent years by several European central banks, starting with Denmark in mid-2012. The ECB moved to a negative deposit rate in June 2014 and its further expansionary measures in subsequent months pushed first Switzerland and then Sweden into negative territory also. The banking and financial systems of these countries are clearly linked, with the euro area a predominant influence; even the early move by Denmark (long before the ECB went negative) can be seen as a reaction to developments in the euro area in 2012, as mobile funds sought safer havens. Thus, the Riksbank's decision to go negative cannot be fully understood without keeping this international context in mind. This point is further considered in Chapter 5 below.

Nevertheless, the Riksbank is clearly not absolutely constrained in its interest rate policy by conditions in the euro area. It is therefore relevant to know how the negative policy rate has transmitted itself through Sweden's financial and economic system.

Did negative interest rates have a strong effect on the supply of credit to SMEs? How effectively was the policy rate passed through to borrowers? Did reluctance to push deposit rates negative impede the transmission, or did lowering rates below zero have a bigger effect than a comparable lowering of rates when they are positive? To what extent were bank responses seen more in higher risk than in increased lending? For other countries, data-based answers to these questions has been emerging, for example in detailed econometric studies such as the bank-by-bank analysis of risk-taking for the largest euro-area banks reported in Bubeck et al. (2020), the loan-by-loan analysis of bank lending in Italy in Bottero et al. (2021) and the firm-by-firm analysis from twelve other euro area countries in Altavilla et al. (2020). Most of this evidence confirms that the hoped-for expansionary effect did materialize (cf. Schnabel 2020; Heider et al. 2021; Brandão-Marques et al. 2021). Studies of comparable granularity do not appear to have been completed for Sweden during the period under review, but there is no strong reason to expect the results to be materially different.

We would therefore concur with the conclusion of an article in the Riksbank's 2019 Account of Monetary Policy — published just as the period of negative rates was coming to an end — that “the negative policy rate [had] had an expansionary effect and contributed to inflation being close to the target”.[26]

Nevertheless, several aspects remain controversial: how well did repo rate reductions pass-through to other interest rates and bond yields? Could a negative policy rate have been prolonged without growing adverse side-effects? How strong was the impact of the various transmission effects of interest rate declines on aggregate activity and inflation? Assigning additional research resources to the econometric analysis of microeconomic data on loans and business investment under negative interest rates would likely have been worthwhile in confirming and quantifying the effects on business and household behaviour.

More generally allocating more of the Riksbank’s research effort to loan-by-loan, customer-by-customer, and transaction-by-transaction micro-data would yield enhanced insights into the working and effectiveness of monetary policy measures.

Impact of Negative Repo Rate and its Movements

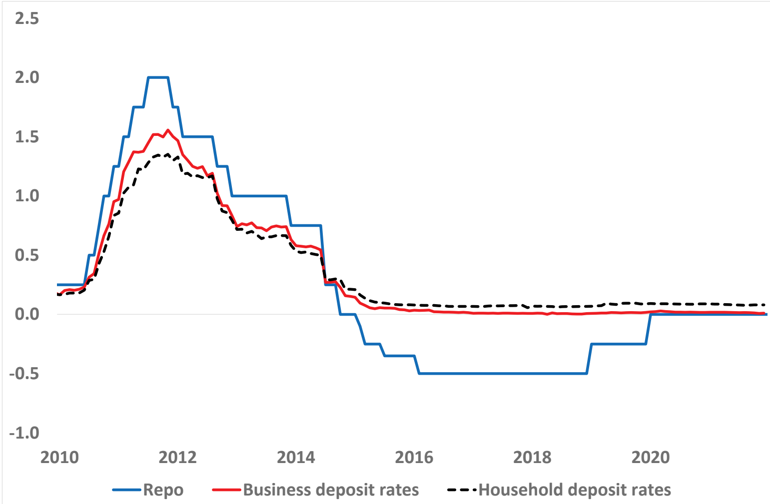
International experience suggests that pass-through of interest rate movements when the policy rate is negative can be sluggish (Ball et al. 2016). The Swedish case seems to confirm this. In particular, the official statistics on bank interest rates do seem to make it clear that Swedish bank deposit rates bottomed out at close to zero by the time the repo rate had reached -0.25 per cent.[27] Indeed, by that point deposit rates had fallen by less than 150 bp compared with 225 bp of the repo. As such, the repo downward moves did not pass through one-for-one to deposit rates even before the repo went negative. This should not be a surprise. Indeed, we can see it as an example of the way in which bank-based economic systems tend to insulate the retail and mid-market customers from the extremes of volatility in financial market yields. Banks in most countries have tended over the years to smooth the impact on retail rates of high-frequency wholesale money market rates. (Note that deposit rates had not risen to match repo in the rate increase period up to 2011) (Figure 17).

[26] Side-effects of negative (as distinct from low) interest rates were also reviewed in that paper.

[27] Eggertson et al. (2020) argue that passthrough was strong until the repo rate reached about -0.25, but then stalled, suggesting that a de facto floor of many deposit rate contracts around zero limited the effectiveness of repo reductions beyond that point. However, Eriksen and Vestin (2021) have rebutted this argument with data showing that, albeit somewhat slowly, lending rates did continue to experience pass-through for most categories, although “pass-through appears to have been somewhat slower and weaker for lending rates to households”.

Figure 17 Bank deposit rates

Per cent



Sources: Statistics Sweden and the Riksbank

Pass-through to Swedish bank lending rates seems to have been more complete. Spreads of bank lending rates above repo have been very little affected by the fall in repo rates. If anything, spreads have fallen since repo was at 2 per cent in 2011 – though spreads are indeed higher than they were before 2008 (Figure 18). No evidence, then, that a particular negative policy rate is a floor for pass-through. Some of this is explained by the importance of market financing of the main Swedish banks through the use of mortgage (covered) bonds.[28, 29]

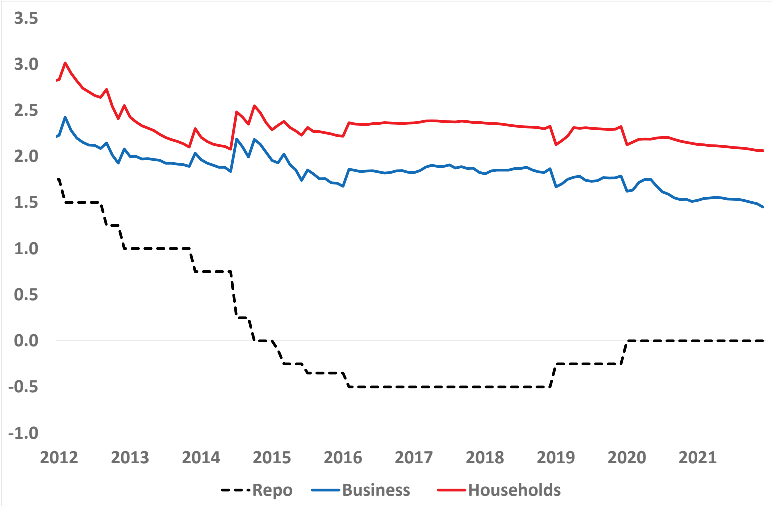
As far as securities markets is concerned, it appears that pass-through to yields was quite complete. The yield curve slope (2 years less repo) showed no tendency to increase at low repo rates – indeed it was *on average* almost flat at least until 2018. Around this average there have clearly been some quite significant fluctuations. Notable in the figure is a degree of ratcheting around the dates of pre-announced repo rate changes: the repo rate changes were often implemented some days or weeks after announcement, whereas the impact on longer term market rates of the policy announcement would tend to be almost immediate (Figures 18 and 19).

[28] A recent paper by Onofri, Peersman and Smets (2021) shows that negative interest rate policy need not be rendered ineffective by a zero floor on deposit rates if there are other assets in the household portfolio and other sources of financing by banks.

[29] The entry of new mortgage players and increased competition might also have played a role: https://www.riksbank.se/globalassets/media/rapporter/ekonomiska-kommentarer/engelska/2020/new-challengers-on-the-mortgage-market--increased-competition-and-possible-pressure-on-interest-rates.pdf

Figure 18 Bank lending rates – spreads over repo

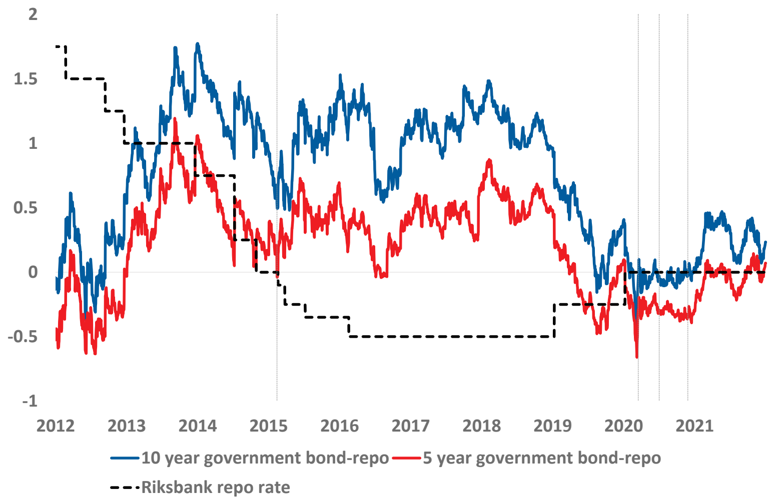
Per cent



Sources: Statistics Sweden and the Riksbank

Figure 19 Bond yield spreads

Per cent and percentage points



Note: The vertical lines indicate the announcement of purchases of bonds in February 2015, March, July and November 2020.
Sources: Statistics Sweden and the Riksbank

The movements in bond yields on the six monetary policy announcement days in 2015 have been analysed closely by De Rezende (2016). He notes that the sum of the one-day responses of Swedish 10-year bond yields to these was about 40 basis points (0.4 per cent). Of this, 27 bp is not explained by the response to repo rate movements, and can presumably be attributed to the asset purchase component of the announcements. (The term premium fell by 26 bp of which 18 bp cannot be explained by the response to repo rate movements.) Interestingly, the 10-year mortgage bond did not move as much – a decline of only 22 bp. Furthermore, the increase in repo from early 2019 did not result in a rebound in medium or long-term Swedish yields, whether for government or covered bonds. Instead, these yields drifted further downwards in sympathy with German Federal Government bonds. Indeed, it is striking how long-term Swedish bond yields seem to have followed those of the Germany into more negative territory despite the return of the (short-term) repo policy rate to zero, thereby confirming that Swedish financial market conditions are far from being fully under the control of the Riksbank. International developments do, in this recent period, appear to have had a more important effect on bond yields than did Riksbank policy (cf. Figure 20).

The main Swedish banks finance a sizable share of their mortgage portfolios through covered bonds, whose yields can go – and have gone – negative. Accordingly, bank profitability may have been less adversely affected by low and negative interest rate policy and their reluctance to impose negative deposit rates on depositors than has been the case in some other countries (Madaschi and Pablos 2017).[30] This is also suggested by the relatively high ratio of their stock market price to book value of equity during the negative rate period. For example, during 2017 three of the main Swedish banks ranked highest in Europe in the ratio of market price to book value (among banks with total assets of above €100bn), with the other coming in fifth place.[31] Smaller Swedish banks have also retained and even improved profitability when interest rates went negative: in this case by expanding their lending to households, including unsecured lending offering higher interest spreads, as well as by cost reductions. However, there is international evidence that, as the period of negative interest rates was prolonged, it began to have an impact on bank profits in affected countries, and there are some indications that the Swedish banks were not exempt from this path (Zhang 2021).

Several transmission channels of monetary policy are seen to be operating during the negative interest rate period. The *credit channel* is illustrated by survey results on available credit terms. While these surveys still showed that most respondents considered credit conditions to be tight, the balance was much less adverse from 2014 than it had been since the GFC. This was still true after mid-2017, but there is an evident tightening around then not long before some of the members of the Executive Board began to argue for a rate increase.

The *cash-flow channel* is important in Sweden because of the prevalence of floating rate mortgages. This channel relates not to the cost or availability

[30] As mentioned, by 2018 banks in Sweden were considering whether to apply negative interest rates to household deposits: this prospect could have undermined public support for the negative interest rate policy.
[31] https://www.spglobal.com/marketintelligence/en/news-insights/trending/ivf8udjj9cpzct1isejraa2 Sept 2017

of new borrowing but to the squeeze on liquidity-constrained existing borrowers from the increased servicing charge they have when interest rates increase (and vice-versa). To the extent that the repo rate has transmitted to mortgage interest rates, this cash flow mechanism has had a fairly quick impact on borrowers, given that, until recently, more than half of mortgage finance in Sweden was at adjustable rates (Swedish Banking Association 2020; Flodén et al. 2021).

The *present-value mechanism*, whereby a lower cost of funds makes certain projects more profitable in net present value terms, thereby increasing spending on investment projects, will also have been present. Evidence can be sought by inspection of capital formation by firms, by price effects on Swedish financial asset markets and by price and volume effects in housing. Reliably isolating the effects of this mechanism from data is, however, inherently difficult. Housing price inflation did accelerate during 2015, but slowed into 2016 and by mid-2017 house prices were falling. This time pattern at least is thus in line with the other channels.

Other channels, including the *asset price effect* on collateral and the *exchange rate channel* have also been found to be significant in empirical work on the effectiveness of monetary policy. In particular, the growing levels of indebtedness in Sweden seem to have enhanced the effectiveness of low interest rates in boosting aggregate demand (Di Casola and Iversen 2019).

All in all, there is ample evidence to confirm that, as they dipped below zero, low interest rates have continued to work in the intended direction to increase aggregate demand without damaging the workings of the banking system.

4.2 Outright Asset Purchases

2015-2019

The generally expansive monetary policy stance was supported by outright purchases of government bonds (both nominal and real index-linked) in sizable amounts in 2015 and 2016, continuing on a smaller scale in 2017.

These purchases began at the same time as the ECB greatly expanded its asset purchase programme to include public sector securities. The Riksbank's purchases were at first on a much smaller scale – just SEK 10 billion in March and April of 2015 whereas more than SEK 30 billion in that period would have required to be proportionate to what the ECB was buying.[32] Purchases during 2015 and 2016 continued to be low relative to what the ECB was doing. By mid-2016 the Riksbank was reducing its monthly pace of purchases even as the ECB expanded, and further reductions relative to the ECB occurred in 2017 at which point the Riksbank was buying at a proportional of only about

[32] This calculation applying the Riksbank's share of the ECB capital key to the €95 billion purchased by the ECB produces €3.6 billion or about SEK 33 billion. For May to September the same calculation would produce SEK 85 billion, compared with the SEK 40-50 billion announced by the Riksbank in April.

one-sixth of what the ECB was doing. There is no implication that this was a mistaken policy, but only to point out that the Swedish QE was on a much smaller scale than that of the ECB. No doubt this can be partly explained by the fact that the ECB was also facing a bigger inflation undershoot relative to target. Another factor was the lower stock of outstanding government debt in Sweden in relation to GDP – after all, the Riksbank's holdings reached about 45 per cent of government debt—much higher than occurred in the euro area. A sense that, at this size, the Riksbank's holdings could be challenged in terms of the Treaty prohibition on monetary financing was relevant.[33, 34] Still, no explanation seems to have been offered for the precise choice of volume of purchases.

Net purchases ended for the time being in 2017, though maturing bonds and interest receipts were reinvested and early reinvestments resulted in some small transitory increase in holdings.

Purchases of medium and long-term bonds is normally considered as a means of flattening the yield curve when the short rate is close to the lower bound. Inspection of the yield curve slope in 2015-2017 does not show a strong effect after February 2015.[35] Indeed a persistent flattening of the yield curve (proxied in Figure 19 by the difference between bond yield and repo) is only seen after mid-2018, a development we have already linked to euro area developments.

Several scholars have sought to quantify the expansionary impact of the yield-curve flattening resulting from asset purchase programmes in terms of an additional lowering of the (negative) policy rate (without QE) were that possible. Estimates of this so-called "shadow" policy rate have been made by De Rezende and Ristiniemi (2020). They conclude that each unanticipated SEK 10 billion of asset purchases equates to about 3.3 basis points of a cut in repo. During the negative interest rate period, QE is estimated to have generated a shadow rate of between ½ and ¾ per cent below actual repo. Using this approach and the Riksbank's RAMSES II model, these authors calculate that inflation in early 2019 would have been about ½ per cent lower, and unemployment ¾ per cent higher had QE not been introduced in early 2015. These estimates appear plausible.

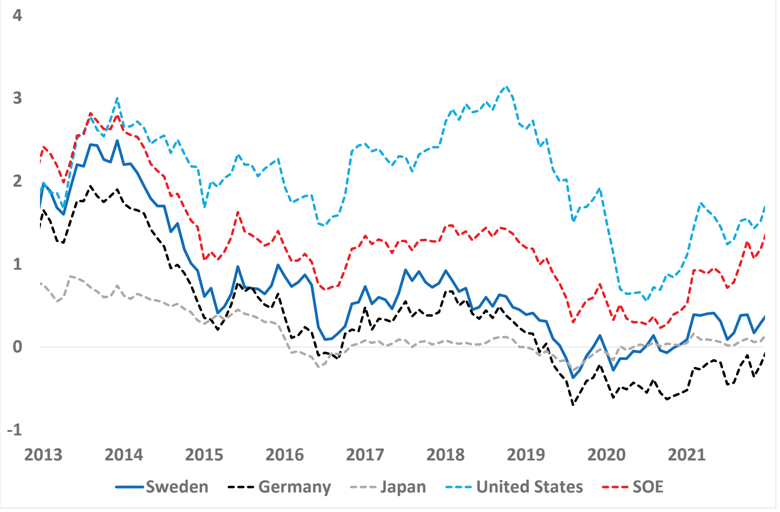
[33] See, for example, this passage in a recent Riksbank QE decision: "The purchases included in this decision shall be implemented with such an allocation and according to such terms and conditions that they can be assessed as compatible with the appropriate provisions regarding the prohibition of monetary financing, in accordance with the instructions in the Executive Board decision dated 9 February 2021 (ref.no. 2021-00257). This means that the purchase programme will continue to be designed based on the principle that the Riksbank should not hold a predominant share of the total outstanding stock of securities issued by the Swedish state, Swedish municipalities and regions, as well as Kommuninvest i Sverige AB and publicly-owned companies."

[34] We do not consider here whether having the central bank hold such a high share level of total Swedish Government bonds outstanding might have an adverse effect on the liquidity and price discovery function of the bond market in Sweden.

[35] As noted above, De Rezende (2016) calculated a net impact of QE in 2015 at 27bp for the 10 year bond yield or 18 bp for the 10 year term premium. (For the 5 year maturity the figures were 29bp for yield and 18 bp for term premium).

It should also be noted that asset purchase by other central banks, especially the ECB, have had expansionary spillover effects on Sweden during the period under review (Di Casola and Stockhammer 2021). One can think of this happening not only by increasing aggregate demand (albeit potentially appreciating the SEK which would have an offsetting contractionary effect) but also by helping to induce an asset purchase response by the Riksbank.

Figure 20 10-year Government bond yields, Sweden and selected countries
Per cent



Note: SOE is an average of Czech Republic, Denmark, Israel, New Zealand, Norway, Sweden and Switzerland.
Sources: Bank of Norway, European Central Bank, Macrobond, Reserve Bank of New Zealand and U.S. Department of Treasury.

2020

The Riksbank's policy response to the pandemic from March 2020 involved greatly expanded asset purchases, which were also extended into covered, municipal and corporate bonds and commercial paper, etc. Although the scale of the purchases was smaller (relative to GDP) than in several other leading central banks, it was substantially above the rate at which bonds had been bought in 2015-2016 (Figure 14).[36]

The biggest share of these new purchases was mortgage covered bonds. The Riksbank already held such a high proportion of the outstanding stock of government bonds that, in an abundance of caution with respect to the EU Treaty prohibition on monetary financing, further purchases were at a slower pace. In addition, municipal bonds were acquired in sizable quantities (Hansson and Birging 2021). The extension to other categories also reflected the fact

[36] The Riksbank did not, however, attempt to anchor long-term rates through yield-curve control (as in Japan). And rightly so: such a policy could involve extremely large bond purchases. In addition, exiting from such a policy is likely to be difficult.

that, although all bond yields were impacted by the purchase of government bonds, the pass-through to non-government bonds was imperfect in 2015.[37]

Only a relatively small amount of corporate bonds and commercial paper was bought – almost all of the latter category in the second quarter of 2020. The corporate bonds were heavily weighted to the real estate sector — a curious feature given the desirability of not adding to what many saw as an overheated sector. Because of the various complexities involved in starting up the programme, the purchase of corporate bonds was not commenced until September 2020. Arguably, purchases were not needed by then, as the crisis in the financial market had passed, but the Riksbank felt that it had to follow through on the commitment it had made to purchase.

This phase of QE differs from that in 2015 inasmuch as it happened without a lowering of the repo rate. This wave of purchases can be best seen as measure to stabilize financial markets rather than to influence the yield curve and thereby aggregate demand. The extension of purchases into other categories also points in the same direction, though the continuation of purchases well beyond the initial financial panic stage of the pandemic casts some doubt on that interpretation. Indeed, the continued purchases into late 2020 and beyond are less easy to rationalize.

The continued purchase of private bonds after the immediate panic was over began to raise some tough questions. First, there is the question of credit risk: the number of firms whose bonds have been acquired is very large, though the Riksbank has limited itself to bonds of investment grade.[38] It is understood that a broad market neutrality approach is adopted (with certain negative criteria, relating to climate change, recently introduced). But is this an adequate basis for ensuring economic efficiency? If not, could political pressure be brought to bear on the Riksbank to focus purchases on specific sub-sectors or firms in a way that drags the Riksbank into quasi-fiscal activities?[39] Even if the Riksbank successfully resists any such pressure, there is a clear danger that its bond purchase activities could become politicized and the cause of some adverse reputational effects.[40]

When it comes to covered (mortgage) bonds, these may be considered somewhat more safe given the double default protection that is entailed (even though the default of the ultimate debtors and the issuing bank are likely to be positively correlated). But the very direct impact of such purchases on the cost

[37] De Rezende's (2016) calculations suggest that 10 year mortgage bond yields fell by about half as much as 10 year government bond yields. The gap was smaller at shorter maturities.
[38] Ratings from the big three international agencies and two smaller ones are accepted. The limitation to investment grade parallels the practice of the ECB in its corporate bond programme which began in 2016. About half of the listed bonds in Sweden are not rated, so the investment grade restriction is quite tight. By comparison, the Norges Bank has adopted a much less strict criterion for its corporate bond purchases.
[39] Though it is recognized that, like other EU central banks, the Riksbank must not "seek or take instructions from [European] Community institutions or bodies, from any government of a member state or from any other body."
[40] Transparency of the programme was high at the start, but has become somewhat less transparent as it was considered necessary to limit the publication to protect commercially sensitive information.

of funding for house purchase means that purchases of covered bonds at a time when over-indebtedness in an overheated property market is a source of concern. After all, by choking-off an increase in bond yields and thereby avoiding an increase in mortgage lending rates, they supported the demand for housing (Alsterlind 2021). Thus, such purchases might have needed to be offset be a tightening of macroprudential policy measures which are not under the control of the Riksbank and which are likely to have unattractive distributional consequences.

4.3 Forward Guidance

(a) On Policy Rates

The Riksbank introduced forward guidance on its policy rate already in 2007, i.e. in pre-crisis conditions. The policy rate forecasts were intended to represent the policy consistent with the rest of the Riksbank's macroeconomic forecast, rather than declaring an intention to adhere to the announced path.

It is, however, important to distinguish between guidance that merely indicates an expectation, and guidance that involves some degree of promise. Major central banks, including the Federal Reserve, ECB, Bank of Japan and Bank of England, introduced forward guidance on policy rates after the crisis with a different intention, namely as a commitment to holding rates low. The Riksbank has not adopted such "Odyssean" guidance. Although commentators have often criticized the wide gap between forecast and realized policy rates over the past decade, it cannot fairly be accused of failing to deliver on a commitment, as no commitment is implied by the forecast.

As mentioned already, the Riksbank has not used this ("Odyssean") form of forward guidance. Instead, the Riksbank's rate path falls into the ("Delphic") category of being merely a forecast. In that way it is somewhat analogous to the "dot plots" used by members of the US FOMC to indicate where they expect the US policy rate to be. An important difference vis-à-vis the Fed dot plots is that the dots are provided by the individual members of the FOMC and have no obligatory relationship with the overall macroeconomic projections published by the Fed, whereas the Riksbank's forecast is designed to be consistent with the rest of the macroeconomic projections.

The usefulness of Odyssean forward guidance depends on its credibility, but this is not necessarily the case for a forecast offered merely as a the path of policy rates which the Riksbank envisages as being appropriate *if* the rest of its macroeconomic forecast becomes a reality ("Delphic" forward guidance).

Thus, the challenge to the Riksbank's policy rate future path by some observers (for example Andersson and Jonung 2019) should be seen more as a critique of the Riksbank's overall forecasting success rather than being strictly targeted at the rate path. Still, it may be sensible for the Riksbank to further de-emphasize the forecast path for the policy rate. For example, statements such as “the first rate increase is not expected to be made until the middle of 2018, which is the same assessment as in April” or “and revising the repo-rate path down substantially in relation to the [previous meeting’s] decision,” appearing in the Summary page of Executive Board minutes, may be more misleading than useful. The accompanying fan chart, which (as already suggested above) is too wide to be of much use, could also be downplayed.

But could it be useful for the Riksbank to move in the Odyssean direction of turning elements of its policy rate forecasts into a commitment? After all, the practice of the major central banks has legitimized such a usage and even created an expectation that it could be useful in some circumstances. The Riksbank would need to make such a shift in the use of forward guidance very explicit if it is to have the desired impact on market expectations. However, the Riksbank could end up paying a price for such a policy of tying its own hands. In order to preserve its credibility, it might have to stick by its commitment to what had become a sub-optimal policy, if conditions that have not been foreseen when the commitment was made were to emerge.

One way of providing forecasts while maintaining the flexibility to adjust policy to changing circumstances is to stress the fact that the forecast of policy path (interest rate and QE) is conditioned on the realization of the main elements of the forecast.

Another way deal with the problem of time inconsistency of policy forecast/commitment especially in times of high uncertainty is the use and presentation of alternative scenarios. The Riksbank used to present different policy rate scenarios in the past, but has not done so since 2015. This could be an effective way to convey uncertainty regarding economic developments and therefore also regarding the future policy path.

A particular instance of forward rate guidance creating some frictions relates to the intention to bring repo back to zero, clearly signalled from 2018. As mentioned, by late 2019 the macroeconomic circumstances were less obviously pointing to the final move, but the prior signalling created strong market expectations which the Riksbank felt reluctant to disappoint.

(b) On QE

It seems that, in regard to elements of Swedish QE, the shift to a commitment has already occurred. The existence of QE certainly complicates the provision of forward guidance whether on rates and purchases, especially considering the extent to which they are substitutes, and especially in times of heightened uncertainty. Still, there is a presumption that announcements on the future path of QE have more the character of a commitment than a mere forecast, though this does not appear to have been made explicit by the Riksbank. After all, such announcements appeared to be decisions to actually buy a particular volume over periods of six months or so. This is a point that needs to be clarified.

Taking this commitment element into account, it does seem clear that, even more than is the case with rates, the fan charts (published from February 2021) are an insufficient tool to convey the nature and extent of the uncertainty that is involved in future asset purchases and of the contingencies that will influence this.

An example of the time-inconsistency problem created by an early announcement of bond-purchases occurred in 2020, when it took several months from the time the Riksbank announced its intention to buy corporate paper to prepare implementation of that policy. By the time the preparations were complete, the need for purchases had arguably vanished, yet the Riksbank felt compelled for credibility to go ahead with the purchases, seemingly a captive of its earlier forward guidance. A more nuanced announcement could have avoided this time-consistency trap.

Forward guidance is especially difficult when the policymaker does not have a clear plan. For both negative interest rates and QE it does appear that the policies were embarked upon without having much regard to the exit plan. Under what circumstances would negative interest rates end? Should interest rates be normalized before or after re-investment of maturing bought securities was ended? Such questions were left, both in 2015 and in 2020, to be resolved later. This was understandable, especially in 2020 when decisions had to be taken in a hurry, but more attention should probably have been given to ensuring that systematic thinking about these issues was prioritized. Even now, at the time of writing, these sequencing issues do not seem to be settled.

Chapter 5 The International Context

It is natural to look at Riksbank policy mainly in terms of its domestic actions and the impact on inflation and other domestic economic indicators. But monetary policy in as open an economy as Sweden is strongly influenced by international developments and has an important impact on the exchange rate for the Swedish krona. Looking primarily through this alternative international lens, this chapter offers a complementary insight into the workings of Sweden's monetary policy in the period under review.

The conduct of Swedish monetary policy is inevitably constrained by strong international links, not just to the euro area and to other members of the European Union, but also to US dollar financial markets and the wider international economy. The impact of this influence is evident in the way in which interest rates were lowered ahead of the ECB's expanded QE programme launched in early 2015. It was also true in March 2020, when financial market stresses hit most economies more or less simultaneously both directly from the pandemic shock and also as international flows transmitted shocks from country to country.

Successful monetary policy in such an environment requires close attention to international flows and good relationships with other central banking partners, as have been exemplified in the swap arrangements with the US Federal Reserve (mentioned above) and the ECB as well as with other countries for which Sweden is more the provider of funds than taker.

5.1 Exchange Rate Movements and Monetary Policy

Even though, unlike its neighbour the Danish National Bank, the Riksbank does not try to peg the exchange rate, movements in the SEK/EUR rate are both strongly influenced by, and in turn influence, Riksbank policy actions. A higher policy rate tends to be associated with a strengthening krona and vice versa. When ECB acted to lowering its policy rate and adopt other expansionary policies, the Riksbank knew that, were it to ignore these actions, the krona could be expected to appreciate against the euro.

Thus, although not a target of monetary policy in Sweden, the external value (exchange rate) of the krona is an important variable in the determination of price inflation and other macroeconomic conditions.

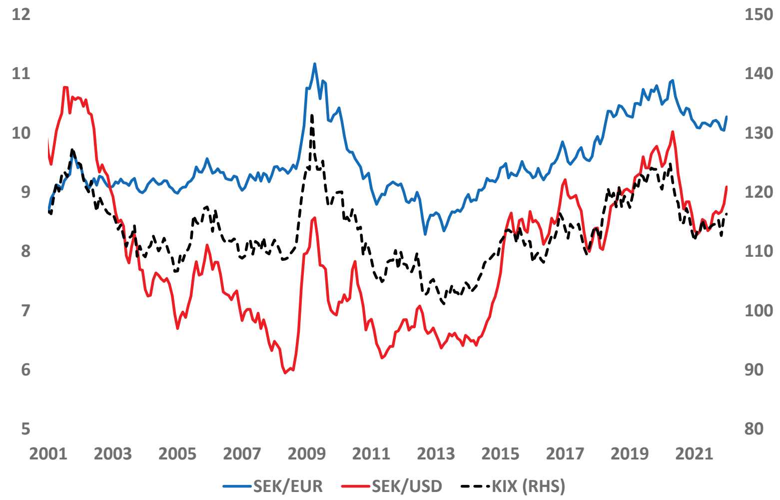
How the Exchange Rate Moved

During the period under review, in addition to daily and weekly fluctuations which can be expected for any freely floating currency in a market system, the exchange rate has experienced a significant low frequency (slow) oscillation.

The net change in the (KIX-weighted) average effective exchange rate of the krona against the currencies of Sweden's main trading partners between January 2015 and December 2020 was only about 1 per cent (Figure 21). However, selecting these two months masks a large low-frequency oscillation from strong to weak and back again. Broadening the temporal scope gives a more coherent picture within which our study period can be better understood. It is clear that, as between the US dollar and the euro, the krona has been more stable against the latter, both over the long-haul and in subperiods.

Figure 21 Monthly exchange rate for the Swedish krona against US dollar and euro, and KIX index

SEK and Index, 18 November 1992 = 100



Note: The KIX (krona index) is a weighted average of currencies in 32 countries that are important for Sweden's international trade. A higher value indicates a weaker exchange rate.
Source: The Riksbank

Indeed, from the start of the euro and until the autumn of 2008, the SEK/EUR rate remained rather stable around the rate of EUR1=SEK9 (with a monthly standard deviation of only 0.3).

During the following five years or so, it then embarked on a roller coaster, first depreciating to over 11 by March 2009 and then recovering strongly and overshooting its previous high to reach about 8.3 four years later.

From April 2013 to November 2019, the SEK was as stable around a path, depreciating at a constant rate of about 4 per cent per annum against the euro, as it had been against a fixed rate against the euro pre-August 2008. This brought the rate close to 11 again by late 2019.

The depreciation of the SEK against the euro continued even after repo was raised in late 2018 and also after it returned to zero at the start of 2020. This indicates that the Riksbank has some freedom of manoeuvre on its policy interest rates.

Finally, the pandemic unleashed a new wave of appreciation, with the SEK/EUR rate returning close to 10 by the end of 2020.

There are a number of striking points about these movements. First, there is no evidence that these low-frequency movements of the SEK/EUR rate are influenced by the US dollar's movements against the euro.[41] The key reference currency for the krona is the euro and the movements we have described are Sweden-specific.

How much attention should an inflation targeting country pay to the evolution of the exchange rate beyond its role as a leading indicator of imported inflation? Despite the focus on inflation prospects envisaged by inflation targeting, many central bankers, including those at the Riksbank, do consider the potentially damaging effect on different productive sectors of strong exchange rate movements (importers and those taking holidays abroad hurt by depreciation; exporters by appreciation). Furthermore, it seems that the public opinion in Sweden, as interpreted by some Riksbank decision-makers, also attaches symbolic importance to not seeing the krona as weak — even independent of any true economic effects. Undue emphasis on such considerations could in the end result in losing the anchor of the inflation target, though this has not happened.[42]

5.2 Contemplating Currency Intervention: a Closer Look at 2015-2016

The impact on Riksbank policy of exchange rate movements and of the environment created by monetary policy abroad, especially in the euro area, is well illustrated by developments at the beginning of the period under review.

Recall that the Riksbank entered 2015 with a repo rate at zero and a stated expectation that it would stay at that rate for longer than had previously been indicated. It had allowed the USD value of the SEK to fall by almost 20 per cent since mid-year — even more than that of the euro. The turn of the year was marked by considerable expectation of a new relaxation of ECB policy and expectations of euro weakness. Indeed, in mid-January the Swiss National Bank, having already pushed its main policy rate below zero the previous month, suddenly abandoned the ceiling it had placed on the CHF/EUR exchange rate; this in turn prompted the Danish National Bank to lower its policy rate to -0.75 per cent to discourage massive speculative inflows. The ECB's public sector asset purchasing programme was announced on 22 January 2015 and the first purchases made in early March.

[41] Regressing monthly percentage changes in the EUR/SEK rate on changes in the EUR/USD rate gives an RSQ of 0.0, whereas regressing USD/SEK changes on those in EUR/USD gives an RSQ of 0.72. (Same result for 2001-2021 and 2015-2020)

[42] An alternative, suggested by some, would be to peg the SEK/EUR rate, as is done in Denmark. Note, however, that this would not have avoided negative interest rates. Furthermore, capital flow management with such a peg might well have presented bigger problems (cf. Honohan 2019).

Despite its expectation that monetary policy in the US and UK would be tightened in the course of 2015, it was the other European developments and prospects, together with the still disappointingly low inflation, that dominated Executive Board thinking. Indeed the Board appear to have reacted both to the anticipation of ECB QE (in 2014) and then again in response to its implementation in early 2015. They decided in mid-February to lower the policy rate gently into negative territory (-0.1 per cent) and to buy a modest amount of Swedish government paper.

In the following couple of months, concerns were expressed about the danger of a strengthening of the krona against the background of monetary policy developments abroad.[43] With inflation still expected to be well below target, the policy rate was lowered further to -0.25 per cent, and the promised amount of QE increased.

With concerns about the krona still prominent in the Executive Board's discussion, the repo rate was lowered again to -0.35 at the meeting in July, despite their expectation that inflation (CPIF) would have reached 2 per cent by end-year.[44]

With inflation expected to reach 2 per cent by the following year no further policy rate changes were made before the end of 2015, but concerns about exchange rate movements continued. Furthermore, the ECB continued to ease, lowering its deposit rate from -0.2 to -0.3 in early December.

On the first working day of 2016, the Riksbank surprised markets by announcing a new quick-acting procedure for currency intervention, whereby the Governor and First Deputy Governor were delegated to take such actions as a complementary monetary policy measure.[45] The decision was taken at an unscheduled extraordinary meeting of the Executive Board, following an appreciation of the krona against both the US dollar and euro (and the KIX index)

[43] As the April Board Minutes put it: "In an environment where monetary policy abroad is out of step, it is difficult to assess exchange rate developments. The krona has weakened substantially, which supports inflation. If the krona were to appreciate rapidly or international developments were poorer than expected, there is a risk that the rise in inflation would come to a halt." Governor Ingves was even more categorical: "He said that the exchange rate is currently a central factor as it is important to inflation, partly because it is affected by developments abroad. The ECB's asset-purchase programme will help to boost growth in the euro area, which is also positive for the Swedish economy. In the short term, however, there is a risk that the krona will appreciate as a result of the ECB's measures, which would hold back the upswing in inflation that the Riksbank is trying to achieve. In one way or another, the Riksbank must therefore address what is happening in the euro area. Mr Ingves emphasised that this requires the Riksbank to be ready to act in several ways, even between the regular monetary policy meetings, if things seem to be moving in a direction contrary to that predicted in the forecasts."

[44] From the July Board Minutes: "Compared to the Riksbank's forecast in April, the krona has grown stronger, and its exchange rate thereby poses a risk to the upturn in inflation."

[45] The decision was explained as follows: "The Riksbank does not have a target for the exchange rate. However, the value of the Swedish krona in relation to the most important currencies abroad is an important factor in assessing inflation. A rapid strengthening of the krona may therefore need to be counteracted by even more expansionary monetary policy. As a complementary monetary policy measure, the Riksbank may therefore need to intervene on the foreign exchange market." ("Foreign exchange intervention – as a complementary monetary policy measure," Annex A to the minutes of the Executive Board meeting of 4 January 2016)

of about 2 per cent since the previous meeting of the Executive Board about three weeks earlier.

Currency intervention is a tool which has been available to the Riksbank, but has not actually been used for many years (since 2002). It is conventional among the major central banks, and within the European Union, that one central bank's intention to conduct currency intervention should be the subject of some prior consultation with other affected central banks. This is one of the "informal rules of the game". While such intervention may be welcomed by partners when it is acknowledged that the exchange rate seems mispriced, in other circumstances it can often be poorly received.

Actually, although the krona weakened on the day the intervention mandate was announced, and although the announcement may have stemmed an incipient strengthening, this date does not jump out from a plot of the daily rates.

About six weeks later at the regular Executive Board meeting, the repo rate was lowered to its all time low of -0.5 per cent. The following month the ECB lowered its policy rates again but this time there was no Riksbank policy response. (The ECB's final policy rate reduction in September 2019 was also not followed by the Riksbank).

Further concerns about what proved to be transitory episodes of krona strength in 2017 and 2018 continued to exercise Executive Board members, though no specific weakening actions were actually taken in that period.

Allowing the special currency intervention delegation mandate to expire in 2019 was unlikely to unduly limit the Riksbank's practical toolbox. Indeed, although the delegation authority was renewed several times until mid-2019, no use was made of it.

All in all, this initiative seems to have been intended mainly as an announcement device.

* * *

Swedish monetary policy is not and cannot be conducted without reference to the policy actions of the central banks of the main trading partners, especially the ECB. To neglect these would be to encourage volatile speculative capital flows and destabilizing exchange rate movements. While the exchange rate is not the objective of inflation targeting, the fact that exchange rate movements strongly influence prices and economic activity in Sweden has clearly been taken into account by the Riksbank on numerous occasions. It is less clear that the Riksbank has a fully worked-out formal strategy for incorporating the exchange rate into its deliberations.

Chapter 6 Other Effects of Monetary Policy

Given the wider set of policy instruments now being used by central banks, greater attention is being paid to their effects on aspects of economic performance beyond price stability. In the chapter we look at three important dimensions: financial stability, climate change and inequality.

6.1 Financial Stability

Monetary policy actions can have important financial stability consequences — not always in a helpful direction. For example, the low interest rate environment has clearly added to upward pressure on housing prices which could present stability risks. As is confirmed by long experience, low interest rates encourage risk-taking by financial institutions as well as by non-financial firms and households. And the risks that are taken often involve high leverage which makes the ventures vulnerable to rate increases. The longer the maturity at which low yields prevail the larger these effects.

Thus, the fact that the Riksbank has had to engineer low interest rates across the yield curve in order to deliver on its price stability mandate has increased the risk of financial instability.

The purchase of sizable quantities of mortgage-backed covered bonds, and of some bonds of real estate and construction companies, may have acted in the same way.

The public authorities as a whole have instruments at their disposal to mitigate these risks, including macroprudential tools, including capital requirement surcharges such as the "countercyclical buffer" and borrower-level rules such as ceilings on the ratio of loan-to-value for mortgage lending. In some countries some or all of these macroprudential tools are wholly or partly under the control of the central bank, an arrangement that allows monetary policy and macroprudential policy to be decided as a joint package by a single agency. However, alternative institutional approaches, assigning macroprudential tools to the financial supervisory authority, to a government minister, or to a multi-authority stability council, are more frequent. Shortly before the period under review here, Sweden decided to allocate responsibility for macroprudential policy to the Finansinspektionen (FSA). Since the Riksbank's mandate prioritizes price stability, it is up to the FSA to respond to stability risks that emerge as a side-effect of monetary policy, rather than having the Riksbank do so.

Taking the current division of labour between the Riksbank and the FSA as given, the Riksbank can still advise on macroprudential policies that are not under its control. It is well equipped to do so, given its capacity for macroeconomic policy research and its independence from the kinds of short-term political pressures that have often resulted in an inaction bias in applying counter-cyclical macroprudential policies in other countries.

The Riksbank is represented on the Financial Stability Council (FSC), which discusses such policies, but this is a forum for policy discussion, not a decision-making body. The Riksbank could adopt a more active role by being prepared to suggest formally to the FSC specific macroprudential policy measures if it strongly considers them to be necessary. If the other FSC participants did not agree, it would be good for them to be expected to explain publicly why.

Some central banks have chosen to moderate the speed with which they aim to achieve the inflation target when housing and other asset prices seem to be overheating. Most (but not all) scholars consider that such a policy approach, sometimes termed "leaning against the wind", is less advantageous than one which uses macroprudential policies to dampen asset price bubbles.[46] To some extent this policy of "leaning against the wind" has been the practice of the Riksbank before 2014. It has not been in evidence during the period under review. On the whole, we think that the Riksbank's more recent stance was well judged.

6.2 Climate Change

The world's main central banks have begun to assess in a more thorough manner the novel question of whether monetary policy should take explicit account of the problem of climate change. To be sure, there is relatively little that any central bank can contribute to this vital policy challenge, but it is not nothing. First, there will be an increasing need to align with – and not undermine – the efforts of other central banks, when it comes to such matters as the composition of asset purchases. Market neutrality as a criterion for this composition is not evidently optimal when certain sectors and firms impose significant externalities through environmental damage. The trust in, and standing of, the central bank will also be at risk if it does not take explicit account of this important challenge, especially at a time when it is receiving extensive public attention in view of the irreversible nature of climate change and the fact that the globe appears to be nearing a tipping point.

An international Network of Central Banks and Supervisors for Greening the Financial System (NGFS) was established in 2017 to develop recommendations for central banks' role in climate change. The Riksbank joined this initiative – which now has 95 members and 15 observers – in its first year.

Climate change has somewhat influenced Riksbank asset purchases and the composition of its external reserves in recent times. From 2021, it will, in line with the recommendations of the Task Force for Climate-related Financial

[46] Some Swedish scholars argue that, at low interest rates, the Riksbank should pay more attention to asset prices (especially housing prices) which can at present be more easily influenced by central bank policy than can the aggregate of consumer prices (cf. Andersson and Jonung 2020).

Disclosures (TCFD), disclose the carbon foot-print of its corporate bond holdings. Nevertheless, the policy deserves further development and transparency.

A decision was taken in December 2020 to adopt a "sustainability strategy for the Riksbank". This is to include a negative screening whereby the Riksbank will not buy bonds of companies which do not comply with international sustainability standards (Andersson and Stenström 2021). As described in Breman (2021), the Riksbank is in effect limiting its monetary policy purchases of corporate bonds to firms that are following relatively good climate policies. It is also moving away in its foreign reserves from the purchase of the bonds of governments whose countries may be regarded as more "brown".

The Riksbank's actions on climate change are now broadly in line with those of the more active of central banks around the world. It is acknowledged that clear global standards for measuring greenness are necessary to ensure that these policies are as effective as they can be: such standards are being worked on, but are not yet well developed. They may not materially influence the progress of decarbonization, but will have a necessary symbolic role.

It is unlikely that this will materially interfere with the Riksbank's ability to achieve its primary price stability goal.

6.3 Inequality

Another issue of general importance which central bank policy influences is inequality of income and wealth in society. The impact on inequality of the lengthy period of low nominal and real interest rates has attracted attention all over the world. Low interest rates are clearly associated with high asset prices and it is evident that these prices have increased the concentration of wealth.

Among the assets affected are homes; their prices have been rising for most of the period under review and accelerated in 2020. Beyond their effect on household indebtedness and thus on financial stability, the rising prices made housing less affordable especially for the lower income segments of society. However, although low interest rates have surely contributed to the demand for housing, the chief policy measures for addressing housing lie within the domain of government structural and tax policies.

Furthermore, low interest rates were needed to ensure adequate aggregate demand to bring economies back to full employment after the global financial crisis, thereby reducing income inequality. A tighter monetary policy in Sweden during this period of relatively weak aggregate demand would have resulted in higher unemployment, which in turn would have had an adverse effect on income inequality. Balancing these two opposing forces is essential if we are to understand the impact of monetary policy on inequality.

Three other considerations need to be borne in mind if we are not to exaggerate the scale of redistribution that is truly attributable to Riksbank policy.

First, low interest rates in Sweden are not simply due to central bank policy. It is true that monetary policy has had an expansionary thrust for over a decade now across most of the globe and that the Riksbank's policy has also been expansionary. However, it is important to note that these low interest rates are only partly a consequence of the policies of the world's central banks (and even less of Riksbank policy per se). Indeed, real interest rates across the world have shown a very long downward trend which has been pronounced in the past quarter century and is variously attributed to demographic developments, movements in inequality, and the rise of high saving economies in Asia, for example (See Mian et al. 2021 and Schmelzing 2020). Thus, a sizable part of the rise in the price of financial assets must be attributed to non-monetary factors. Still, the Riksbank's monetary policy has had *some* autonomous contribution to the low interest rates prevailing in Sweden and as such to the distributional consequences.

Second, monetary policy does not always act to lower interest rates. When inflation is above target, the Riksbank has acted – and will surely act again – to increase interest rates above their long-term trend level. Whatever distributional impact interest rate reductions have will tend to be reversed by such increases. Lifetime distributional effects of monetary policy on inequality can thus be expected to be rather low.

A third point relates also to lifetime calculations. Prosperous individuals who have already accumulated financial assets do benefit, when interest rates fall, from the higher capital value of a given stream of interest or dividends from their accumulated assets. But they will earn less from new savings. This lifetime perspective needs to be kept in mind in assessing the policy relevance of wealth changes resulting from interest rate movements (cf. Auclert 2019)

Quantifying the distributional effects of monetary policy has been a focus of considerable international attention over the past decade or so. This is not an easy task, as it requires micro data in order to identify the scale of impact on income and wealth on individual households, and also needs a robust counterfactual, to assess what would have been the case under an alternative monetary policy sufficient to achieve the price stability goal. For example, there might be a trade-off between QE and lower policy interest rates inasmuch as QE likely has a stronger effect on long-term bond yields thereby generating larger wealth effects; but evidence to confirm such a hypothesis is lacking for Sweden.

The empirical research that has been carried out internationally suggests that the effects of monetary policy on inequality have not been very large, and have varied depending on the state of the economy when the policies were applied. Thus, most studies for the United States suggest a moderate increase in inequality from the use of QE, whereas the ECB's QE, which was adopted at a time of higher unemployment, seems to have resulted in lower inequality (cf. Honohan 2018).

This issue seems to have been addressed significantly in writing by the Riksbank only towards the end of 2020, and there is only limited available empirical evidence. Estimates based on administrative data suggest that *income* effects of an expansionary monetary policy are strongest at the bottom and (if realized capital gains are included as income) the top of the distribution.

The gains at the bottom arise mainly because of employment effects (Amberg et al. 2021).

Data to analyse the effects of QE and low interest rates on the distribution of *wealth* are not available in Sweden, since the abolition of wealth tax in 2007. The flattening of the unemployment response to monetary easing in 2017-2018 may have meant that the regressive impact through wealth effects began to dominate the progressive effect through unemployment reduction.

Given the wider range of tools being used by the Riksbank, there is some potential for trade-off between inequality impacts and other side-effects of the mix of policies used to achieve price stability.[47] The likelihood that some of these policy tools will continue to be used in the future argues that the Riksbank should continue its somewhat belated research on the topic. However, it is important to stress that the main tools to deal with income and wealth distribution lie within the domain of the Government, and to the extent that monetary policy conducted so as to achieve price stability has some redistributive side effects, those could be counteracted by government policies.

[47] For example, it is often noted that a policy of "helicopter money" i.e. a broad distribution of grants from the central bank to the general public, would have a different distributional impact to that of QE for an equivalent impact on aggregate demand and inflation. Of course, having the central bank decide, and implement, such a distribution independently of government policy would be highly controversial. (Furthermore, helicopter money could not be put into reverse when monetary policy has to be tightened.) For the moment, such a policy remains at the level of academic contemplation, though a fiscal expansion of social benefits combined with QE would have de facto similar effects on aggregate demand and inequality.

Chapter 7 Impact of Proposed Legislation

The broad consensus that exists regarding the desirability of central bank independence reflects the generally held view that the primary objective of price stability is best served by a fully independent institution with a precise definition of its mandate.

The question arises whether the proposed new Riksbank Act, in taking a narrow view of the scope of monetary policy, could weaken the Riksbank independence in ways that could harm its ability to perform its role of maintaining price stability, support economic activity and employment and support financial stability. While, having read the draft legislation, we acknowledge that it attempts to avoid such problems, we do have some concerns, which we feel it is important to share.[48]

The draft legislation proposes to amplify the Riksbank's explicit mandate to cover matters such as the level of economic activity which seem to have been hitherto taken into account as a kind of implied mandate. It will be helpful for the effectiveness of this independent institution if (as is currently proposed) the legislature clarifies the secondary objectives that have so far been implicit, but without too narrowly prescribing the policy measures that are to be used in delivering on its mandate.

From this proposed amplification, as well as the decision that the definition of price stability should be subject to the consent of the Riksdag, it is clear that, without compromising the Riksbank's necessary independence, the Riksdag is rightly keen to be closely involved. Of course this wish should not lead legislators to micromanage central banking. A trusted central bank, equipped with a full range of policy tools and the professional expertise to use them wisely in pursuit of its mandate over the long haul is what will serve Sweden best.

Production and Employment in the Mandate

The proposed expansion to the Riksbank's mandate in the draft legislation is welcome, formalising, as it does, the de facto inclusion of production and employment as a secondary target. This change is in line with the legislation governing most central banks, which either has the level of activity as a secondary mandate or in a dual mandate. In practice, the Riksbank has already taken the real economy into account in formulating its monetary policy actions, recognizing that "permanently low and stable inflation" cannot be ensured in a weak economy. Nevertheless, the clarification is constructive in helping to remove any doubt as to the importance of such considerations.

[48] We have examined the draft submitted by the Government to the Council on Legislation. Stockholm, 27 May 2021. We make no attempt to comment on the question of consistency of the draft legislation with the Treaty on the Functioning of the European Union.

Furthermore, the explicit addition of real economy and employment considerations into the Riksbank mandate may make it willing to lengthen the horizon over which inflation is brought back to target if this is necessary to support these additional objectives. For example, it is conceivable that if this had been the explicit mandate during 2018-2019, the return from negative interest rate would have been delayed as unemployment rate was trending upward since early 2018.

Defining the Inflation Target

There is a reasonable consensus in Sweden that the Riksbank has demonstrated a coherent approach to defining price stability and operationalizing the technical details.

The Riksbank should keep under review the overall design of its inflation target, taking into account shifts in the strategy of other leading central banks notably in regard to the question of whether some overshooting of the target should be tolerated in order to compensate for undershooting attributable to having reached the lower bound of the policy rate. There is no pressing need for the Riksbank to revise its approach now, but it should not allow its targeting to deviate too far from the practice of the major central banks of Sweden's economic and financial partners.

Under existing legislation, the definition of price stability and the choice of an inflation target is a matter for the Riksbank itself. In some other countries, the government or the parliament has a role in defining the inflation target, but this is not the case in the euro area or in the United States. In this respect the Riksbank's autonomy is comparable to that of the ECB and Federal Reserve; greater than that of the original inflation targeter, the Reserve Bank of New Zealand, for which negotiation between Bank and Government is specified; and much greater than that of the Bank of England, which is given its inflation target by the British Government (Table C).

The legislative proposal to require Riksdag consent for the Riksbank's specification of the price stability target would somewhat reduce the autonomy of the Riksbank, but would leave it with greater autonomy on this matter than many other effective central banks.

One potentially important drawback to this proposal, however, is the danger that this procedure could introduce a bias for inaction if at some future date the Riksbank, although regarding a change in the target to be desirable, could not easily find a satisfactory formulation that would command sufficient support in the Riksdag. This danger can be averted if the Riksdag continues in practice to defer on technical aspects of the design of the inflation target.

Segregating Financial Stability Policy

The draft Riksbank legislation also makes separate provision for a secondary mandate on financial stability. In this respect also the Riksbank has not previously neglected an implicit mandate.

But by separating the legislative authority for financial stability actions from that for monetary policy, the draft legislation introduces a somewhat artificial distinction which is likely to be impossible to maintain in practice. This is because the most important operational tools of liquidity support necessarily have monetary policy implications.

There is in reality only a single toolbox: each of the tools that are being considered as either for monetary policy or financial stability policy can be used for each of the goals and indeed each tool will have effects on both.

Experience in other countries shows that attempting to maintain an artificial separation between tools that are focused on price stability and those focused on financial stability can result in sub-optimal measures for both objectives.

The most practical implication of the proposed separation relates to the requirements in Chapter 3, Section 11 of the draft legislation for cooperation with other authorities of state. In many instances such cooperation should indeed be expected when structural policy changes are being planned.[49] However, it should not become routine that the Riksbank is expected to consult on its use of liquidity tools. The final paragraph of Chapter 3, Section 11 states that the requirement for prior consultation shall not apply "if a decision is urgent or if its effect is jeopardised."[50] As worded, this provision intends to ensure that speedy action in an emergency such as that of March 2020 need not be delayed. But the wording of this paragraph may not be strong enough to insulate the Riksbank's monetary policy discretion from procedural obstacles and delays. Instead, the requirement to consult with the FSA and other relevant authorities before implementing policy tools aimed at financial stability as in the proposed law may lead to inaction bias by the Riksbank when the grounds for policy action may not be clearly separable between financial stability and price stability objectives, and when the determination whether the "decision is urgent or if its effect is jeopardised" may be difficult in an evolving situation that may turn into a crisis.

The extensive measures adopted by the Riksbank in March 2020 reconfirm the importance to Sweden of being able to promptly deploy all of the instruments necessary to ensure price, monetary and financial stability. Central banking tools for monetary policy and financial stability are not clearly separable. In a crisis, no sharp distinction can truly be drawn between the central bank's tools of monetary and financial stability policy. In its final decisions on

[49] For example, the 2015 swap arrangement through which the Riksbank made US$0.5bn available for six months to the National Bank of Ukraine provides another example (cf. Gislén et al. 2021). While the technical and legal aspects of this arrangement were carefully designed at the Riksbank, such actions have wider diplomatic and political implications and need to be decided in the context of wider national policy.

[50] In such a case, the Riksbank is to notify the relevant authorities of the decision without delay.

the wording of new legislation, the legislature will do well to avoid introducing ambiguous procedural requirements that could hamper the speed and discretion that have proved in 2020 – as also in 2008 – essential for effective use of monetary policy instruments to combat sudden deteriorations in financial conditions threatening price and economic stability.

More broadly, a well-functioning financial system is a necessary condition for an effective transmission of monetary policy. Therefore, instruments aimed at safeguarding or restoring its functioning are, in our view, an integral part of monetary policy, and the Riksbank should maintain the full autonomy in applying them.

Concluding Remarks

Overall Assessment

Having tackled with considerable energy first the problem of below-target inflation, and then the disruptive effect of the pandemic, the Riksbank can look back at the period 2015-2020 as one of monetary policy success. This has also been a period that required extreme policy measures with negative interest rates for much of the period and a remarkable increase in the size of the Riksbank's balance sheet. It is not surprising that some of this has generated controversy, especially in regard to potential side-effects, and has prompted a focus on the role and powers of the Riksbank.

Our overall assessment is that the Riksbank's inflation-targeting monetary policy in this period has been well-judged and more successful than it had been in the previous few years. The measures adopted were consistent with what is internationally considered as good central banking practice.

Naturally there is scope for small differences of opinion as to such matters as timing of interest rate movements and the purchase of some types of security. However, we consider that Sweden has been fortunate to have a central bank able and willing to take quick and well-designed action to stabilize economic and financial conditions.

The side-effects of what are still very low interest rates and a very large balance sheet do, however, deserve more analytical attention than they received up to 2020. The extent of the policy toolkit being used by the central banks including the Riksbank these days means that consideration of side-effects (including on risk-taking in financial asset markets, on income and wealth distribution and on climate-change relevant finance) needs to play a more prominent role in the analytical work of the Riksbank. Its increased attention to these aspects in recent months is welcome.

Legacy of the Global Financial Crisis and the Covid Pandemic

The Riksbank was not alone among central banks in facing broader than usual challenges, and more public scrutiny, in the aftermath of the Global Financial Crisis. Indeed, as is so often the case in a small open economy, many of the problems faced by the Riksbank over the past decade have been external in origin and its room for manoeuvre constrained by international market pressures.

Keeping inflation close to target – the primary goal – required steps to boost aggregate demand by ensuring low interest rates. At the same time the massive increase in uncertainty following the Global Financial Crisis generated financial fragility and a widespread reluctance to engage in capital formation (investment). These headwinds too had to be countered by the actions available to central banks if they were to meet their secondary objectives of supporting general economic policy goals including financial stability and sustainable employment and output growth.

As Sweden's financial system had been less severely affected than most others, and with house prices rising relatively rapidly, the Riksbank decided in mid-2010 to reduce the degree of monetary expansion ahead of most others. Equally, it was slow in lowering interest rates during 2012-2013 despite inflation starting to undershoot the target; this period was associated with considerable disagreement in the Riksbank's Executive Board, as was discussed in the previous report in this series (King and Goodfriend 2016). By mid-2014, however, in the face of persistent undershooting of the inflation target, and with the increasingly expansionary stance of the ECB affecting the external environment, the Riksbank changed course and reduced the gap between Swedish interest rates and those in the euro area.

Consistent with the new approach, the first five years of the period under review saw the Riksbank maintain negative interest rates to help edge inflation back up to target (a policy which had the effect of reversing the previous strength of the SEK in international currency markets). Inflation did eventually reach the target level, prompting the Riksbank to bring its main policy interest rate back up to zero (perhaps a little sooner than would have been ideal).

No sooner was this done than Sweden was plunged, like others, into the uncertainty and economic downturn generated by the Covid pandemic. This led the Riksbank (like other central banks) to greatly expand the scale and scope of its asset purchases to help stabilize the financial system and the economy.

Could an Alternative Policy Have Worked Better?

While the Riksbank's overall approach to monetary policy was in line with that practiced in other highly regarded central banks in recent years, a spectrum of opinion exists in Sweden on the degree to which the best course was chosen.

Given the close links with the euro area, it was almost inevitable that the Riksbank would respond to the ECB's increasingly expansionary policy from 2014, involving negative policy rates and asset purchases, by pushing its policy rate into negative territory also. Indeed, we share the view of some observers that the easing of policy that marked the early years of the period could have been sustained for longer, allowing the economy to run "hot" in order to make further inroads into long-term unemployment. Even if this involved a temporary overshoot of the inflation target, that would be welcome given the previous experience of undershoot. Besides, the variation band of +/- 1 per cent would have allowed a temporary overshoot.

An interesting alternative view starts from the observation that the effectiveness of low interest rates in stimulating inflation seems weaker than in the past. If so, could exchange rate and overall financial stability have been protected better by avoiding a negative policy rate, without suffering too low an inflation rate? We are less convinced by this alternative view, noting for example that the previous five years of positive interest rates was marked by more exchange rate volatility and by inflation greatly undershooting the target.

The Future

With sharp movements in asset prices and the prices of some classes of goods and services, the monetary policy landscape at the time of writing has several unfamiliar features. The price of such assets as equities and housing are very high, so policymakers need to be ready to deal with the consequences of any sharp falls that might occur. Meanwhile supply restrictions and shifting patterns of demand have resulted in very large relative price movements and in a surge in the overall consumer price level. Ensuring that this does not somehow spillover into continuing inflation (as happened in the 1970s with the first energy price shock) will be a key challenge for monetary policy.

Based on what we have seen for the period 2015-2020, the Riksbank is well-equipped to respond to these emerging challenges:

– Its monetary policy decision-making process is robust and it uses mainstream modeling approaches. Still, it should continue to develop its analytical tools, especially to ensure that it keeps up with developments in modelling and econometric data analysis, for example in estimating the effectiveness of its asset purchases programmes.
– Its communication with stakeholders is clear and transparent, though more could be done to present its perception of the varying scale and nature of the uncertainties that can make unforeseen policy adjustments necessary. In particular, the impact of forward guidance on future policy actions would be enhanced by making explicit the conditional (state-dependent) nature of the guidance.

The pandemic represented an extreme example of an unexpected exogenous shock – but there have been others. Since economic forecasting is not a precise tool, the policy regime should be not only well attuned to the central macroeconomic projection but robust to deviations from that central projection. The Riksbank has passed this test well. It will be important to ensure that it continues to have the toolbox and the freedom of action to respond to unpredictable shocks in the future.

The time will come for a less expansionary stance of monetary policy in Sweden. Given the range of tools that has been deployed over the past decade, and the accumulation of assets on the balance sheet of the Riksbank, there will, as in other countries, be a range of complex decisions to be considered around this exit. The communications challenges will be considerable. Potential effects on financial stability will have to be taken into account. Some of the side-effects of expansionary measures, as with inequality, will tend to go into reverse. An additional element of complexity will be associated with the introduction of e-krona, the central bank's digital currency.

In this environment, it will be crucial for the Riksbank to retain the confidence of the Riksdag, of other public bodies, of the financial markets and of the general public.

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ANNEX 1

Terms of Reference for Evaluation of the Riksbank's Monetary Policy 2015-2020

Introduction

The Riksbank (the Swedish central bank) is an authority under the Riksdag with responsibility for Swedish monetary policy. Since 1999, the Riksbank has had an independent status in relation to the Riksdag and the Government, and under the Riksbank Act (1988:1385), its objective is to maintain price stability. According to the legislative history of the Act, the Riksbank should also, without neglecting the objective of price stability, support the aims of general economic policy with the purpose of attaining sustainable economic growth and high levels of employment.

The Riksbank has itself formulated the operative target of monetary policy. From 1995 to the autumn of 2017, the target was that inflation should be at a level of 2 per cent, measured as an annual percentage change in the consumer price index (CPI). Up until 2010, there was a tolerance interval around the target of plus/minus 1 per cent. On 1 September 2017, the Riksbank decided to change the target, so that inflation should be 2 per cent, measured as an annual change in the consumer price index with fixed interest (CPIF). At the same time, a "variation band" was introduced of between one and three percentage points around the target. The Riksbank pursues what is known as a flexible inflation target policy.

Under the Riksbank Act, the Riksbank shall also promote a secure and efficient system of payments. According to the legislative history of the Riksbank Act, this is a fundamental task of the Riksbank, but it is not actually one of the objectives of its activities. Neither the Act nor the legislative history provide a closer description of what is included in the task of promoting a secure and efficient system of payments.

The Riksbank defines the task in connection with the bank having a responsibility for working towards stability in the financial system and ensuring that it is possible to make payments in a secure and efficient fashion. The Riksbank's practical work within the field includes issuing banknotes and coins, ensuring that there is a central payment system, preventing financial crises through communication, analyses and monitoring of the financial system, influencing regulatory frameworks and legislation, and providing information about and maintaining contingency plans and tools for dealing with financial crises. The responsibility for financial stability is shared between the Ministry of Finance, the Swedish Financial Supervisory Authority, the Swedish National Debt Office and the Riksbank. These meet regularly in the Financial Stability Council in order to discuss financial stability and measures to deal with financial imbalances.

Together with the central banks in all the EU member states, the Riksbank is part of the European System of Central Banks (ESCB). Activities in the ESCB and the Eurosystem (the European Central Bank and the central banks in the countries that have adopted the euro) are regulated by means of the Treaty on European Union and a special statute which is annexed to the Treaty. The main objective of the central banks in the ESCB is to maintain price stability. Without neglecting this goal, the ESCB is to support general financial policy in the Union with the purpose of implementing the Union's objectives.

New Riksbank Act 2023

The last time the Riksbank Act was reformed was at the end of the 1980s, apart from the amendment providing increased independence at the end of the 1990s. Since then, the conditions affecting monetary policy have changed, especially during the last ten years in the wake of the financial crisis. At the end of 2016, the Government appointed a cross-party committee of inquiry tasked with carrying out a review of the Riksbank Act and the monetary policy framework (Dir 2016:114).

The inquiry, which was called the Riksbank Committee, presented its final report to the Ministry of Finance at the end of November 2019 (SOU 2019:46). In the report, the Committee provides proposals in the areas: mandate in monetary policy, mandate in financial stability, the Riksbank's international activities, the Riksbank's institutional and financial independence and the foreign reserves, the Riksbank's organization, the Riksbank's responsibility for cash management and crisis preparedness, and preconditions for democratic scrutiny of the Riksbank and the activities of the Riksbank. The new act should, according to the Committee's proposal, come into force on 1 January 2023.

The Riksdag's Previous Monetary Policy Evaluations

Since the Riksbank was granted its independent status at the end of the 1990s, the Committee on Finance has conducted an annual evaluation of current monetary policy. Since the middle of the 2000s, the Committee on Finance has also initiated three external and independent evaluations of the Riksbank and monetary policy, with approx. five years between them. The first was carried out by Professors Francesco Giavazzi and Frederic Mishkin. This evaluation was of the period 1995–2005 and analysed such things as monetary policy and the formulation of the inflation target (2006/07:RFR1). The second evaluation was carried out by professors Charles Goodhart and Jean-Charles Rochet for the period 2005–2010 and analysed such things as the Riksbank's actions during the financial crisis and responsibility for financial stability (2010/11:RFR5). The most recent evaluation was carried out by professors Marvin Goodfriend and Mervyn King and analysed the Riksbank's monetary policy after the severe financial crisis during the period 2010–2015 (2015/16:RFR6).

New Evaluation of Monetary Policy for the period 2015–2020

The current evaluation is to examine Swedish monetary policy for the period 2015–2020.

An Extreme Period for Monetary Policy

The period 2015–2020 is characterized by the aftermath of the financial crisis with low international demand, very low global inflationary pressures and relatively stringent financial policy as a consequence of factors such as banking and debt crises in Europe. In order to stimulate economic activities and cause inflation to rise, the central banks around the world have lowered their key interest rates to zero, and in certain countries including Sweden and the euro area, key interest rates have been reduced to below zero and have been negative during a longer period. As key interest rates have reached an interest floor, the central banks have taken other "unconventional" measures to make monetary policy even more expansive, primarily through the purchase of various forms of assets. One of the effects of this has been a rapid improvement of the balance sheets of central banks and that the banks today end up holding a growing proportion of assets in the world.

In order to cause low inflation to come up to the target and counterbalance a strengthening of the Swedish krona, the Riksbank lowered the repo rate to –0.1 per cent at the beginning of 2015, the first negative repo rate in Swedish economic history, which was then gradually lowered to –0.5 per cent. A careful increase of the repo rate towards zero was begun at the beginning of 2019 and at the end of December 2019, the repo rate was raised to zero. In 2015, the Riksbank also decided on a programme for the purchase of nominal and real government bonds to further increase liquidity in the Swedish economy. Up until the autumn of 2019, the Riksbank purchased government bonds for approx. SEK 325 billion, which corresponds to 45 per cent of the outstanding stock of Swedish government bonds, and further purchases have been decided up until the end of 2020. The Riksbank's balance sheet almost doubled during the period 2015 to 2019. From the beginning of 2016 until the beginning of 2019, the Riksbank also had increased preparedness for making current interventions with the objective of combating a possible strengthening of the exchange rate of the SEK.

Guidelines for the Evaluation

The evaluation should be conducted according to the following guidelines:

The Design and Effect of Monetary Policy

- The evaluation is intended to analyse whether monetary policy during the period has been well-considered when it comes to reaching inflation targets and its mandates to support general financial policy and promote a secure and efficient payments system.

- The evaluation is intended to analyse the effects these unconventional measures, i.e. the negative repo rate, the purchase of government bonds and the publicized increased preparedness for currency interventions, have had on the development of the real economy and on financial developments in Sweden.
- The evaluation is intended to discuss and analyse the advantages and disadvantages of different unconventional measures in relation to more conventional monetary policy measures. The evaluation is intended in this context to analyse the risks and opportunities involved when building up a solid balance sheet in the Riksbank.
- Many of the Riksbank's monetary policy measures during this period have been motivated by the actions of other central banks. The evaluation is intended to analyse and discuss the degrees of freedom of Swedish monetary policy vis-à-vis monetary policy in other countries.
- The evaluation is intended to analyse the distributional effects the formulation of monetary policy has had during the period.
- The evaluation is intended to scrutinize and analyse the Riksbank's external communication during the period regarding developments in monetary policy and the measures the Riksbank has taken.

Other Matters

- The evaluators is are free also to evaluate other issues, besides the points listed above, if they find that they are significant for developments during the period.

General Guidelines

- The evaluators shall make proposals for possible changes or improvements in the areas that have been evaluated.
- The evaluation shall be presented in the form of a written report.
- Since the evaluation is intended for broad public dissemination, the evaluation shall be written in an easily comprehensible and structured way.

Working Methods and Reports

- The evaluation should be started towards the end of 2020 or the beginning if 2021.
- The finished evaluation shall be presented to the Committee on Finance by the beginning of 2022 at the latest.

The evaluation shall then be published in the form of a report for broad public dissemination, in a Swedish and English version.

Annex 2

Persons Interviewed by the Evaluators

Stefan Ingves, Governor and Pernilla Meyersson, Deputy Head of General Secretariat at the Riksbank (29 March 2021)

Henry Ohlsson, Deputy Governor (21 April 2021)

Karolina Ekholm, Professor at the Department of Economics, Stockholm University and Deputy Governor 2009–2014 (21 April 2021)

Kerstin af Jochnick, Member of the Supervisory Board of the Single Supervisory Mechanism (ECB) and First Deputy Governor 2012–2019 (28 April 2021)

Per Jansson, Deputy Governor (28 April 2021)

Anna Breman, Deputy Governor (28 April 2021)

Martin Flodén, Deputy Governor (5 May 2021)

Lars E.O. Svensson, Affiliated Professor Stockholm School of Economics and Deputy Governor 2017–2013 (12 May 2021)

Anders Kvist and Lars Hörngren, Senior Advisors to the Director General, Swedish Financial Supervisory Authority (26 May 2021)

Torbjörn Isaksson, Chief Analyst Nordea (26 May 2021)

Cecilia Skingsley, First Deputy Governor (26 May 2021)

Göran Hjelm, Head of Agency Swedish Fiscal Policy Council (2 June 2021)

Ulf Söderström, Head of Research Division and Vesna Corbo, Head of Modelling Division at the Riksbank (8 June 2021)

Mats Kinnwall, Chief Economist the Association of Swedish Engineering Industries (30 August 2021)

Anders Vredin, Head of General Secretariat the Riksbank (31 August 2021)

Jesper Hansson, Head of Monetary Policy Department the Riksbank (31 August 2021)

Katarina Lundahl, Chief economist and Erica Sjölander, Head of the co-operation office for the trade unions within industry and senior economist Unionen (1 September 2021)

Olof Sandstedt, Head of Financial Stability Department the Riksbank (1 September 2021)

Xin Zhang, Senior Economist at the Riksbank (2 September 2021)

Heidi Elmér, Head of Markets Department the Riksbank (2 September 2021)

Erik Thedéen, Director General Swedish Financial Supervisory Authority (2 September 2021)

Max Elger, State Secretary Ministry of Finance and Albin Kainelainen, Head of Economics Department (23 September 2021)

Åsa Pia Järliden Bergström and Håkan Hellstrand, the Swedish Trade Union Confederation (23 September 2021)

Torbjörn Halldin, Economist Confederation of Swedish Enterprise (23 September 2021)

Henrik Braconier, Chief Economist and Viktor Thell, Swedish Financial Supervisory Authority (26 November 2021)

Åsa Westlund, Chairman of the Committee on Finance (26 November 2021)

Anders Vredin, Head of General Secretariat, Pernilla Meyersson, Deputy Head, Dag Edvardsson, General Counsel, Mikael Stenström and Christina Nordh Berntsson, Senior Advisor at the Riksbank (26 November 2021)

Anna Breman, Martin Flodén, Per Jansson and Henry Ohlsson, Deputy Governors (26 November 2021)

Oskar Nordström Skans, Professor of Economics Uppsala University (29 November 2021)

Jesper Hansson, Head of Monetary Policy Department, Mattias Erlandsson, Deputy Head, Vesna Corbo, Head of Modelling Division, Ulf Söderström, Head of Research Division and Jens Iversen, Head of Macrofinancial Analysis Division at the Riksbank (29 November 2021)

Stefan Ingves, Governor, and Cecilia Skingsley, First Deputy Governor (29 November 2021)

Marianne Nessén, Senior Advisor at the Riksbank (29 November 2021)

2019/20:RFR1	FINANSUTSKOTTET Öppen utfrågning om den aktuella penningpolitiken den 24 september 2019
2019/20:RFR2	UTBILDNINGSUTSKOTTET Seminarium om livslångt lärande
2019/20:RFR3	KULTURUTSKOTTET Att redovisa resultat
2019/20:RFR4	UTBILDNINGSUTSKOTTET Regeringens resultatredovisning för UO15 och UO16 – utbildningsutskottets uppföljningar 2012–2018
2019/20:RFR5	FINANSUTSKOTTET Hur påverkas den finansiella stabiliteten av cyberhot, fintech och klimatförändringar? En översikt av forskning, aktörer och initiativ
2019/20:RFR6	NÄRINGSUTSKOTTET Uppföljning av beslutet att bilda Sveriges export- och investeringsråd
2019/20:RFR7	FINANSUTSKOTTET Öppen utfrågning om finansiell stabilitet den 29 januari 2020. Fintech och cyberhot – Hur påverkas den finansiella stabiliteten?
2019/20:RFR8	ARBETSMARKNADSUTSKOTTET, KULTURUTSKOTTET, SOCIALFÖRSÄKRINGSUTSKOTTET, SOCIALUTSKOTTET, UTBILDNINGSUTSKOTTET Offentlig utfrågning på temat psykisk hälsa i ett Agenda 2030-perspektiv
2019/20:RFR9	UTBILDNINGSUTSKOTTET Öppen utfrågning inför den forskningspolitiska propositionen
2019/20:RFR10	TRAFIKUTSKOTTET Mobilitet på landsbygder – forskningsöversikt och nulägesbeskrivning
2019/20:RFR:11	KONSTITUTIONSUTSKOTTET Forskarhearing om den representativa demokratins utmaningar i polariseringens tid
2019/20:RFR:12	CIVILUTSKOTTET Civilutskottets offentliga utfrågning om överskuldsättning
2019/20:RFR:13	FINANSUTSKOTTET Öppen utfrågning om den aktuella penningpolitiken 10 mars 2020

2020/21:RFR1	FINANSUTSKOTTET Öppen utfrågning om den aktuella penningpolitiken den 20 oktober 2020
2020/21:RFR2	SOCIALFÖRSÄKRINGSUTSKOTTET Uppföljning av tillämpningen av gymnasiereglerna
2020/21:RFR3	NÄRINGSUTSKOTTET Sveaskogs samhällsuppdrag om markförsäljning – en uppföljning
2020/21:RFR4	NÄRINGSUTSKOTTET Artificiell intelligens – Möjligheter och utmaningar för Sverige och svenska företag
2020/21:RFR5	TRAFIKUTSKOTTET Punktlighet för persontrafik på järnväg – en uppföljning
2020/21:RFR6	SOCIALFÖRSÄKRINGSUTSKOTTET Digitalt seminarium om uppföljningen av tillämpningen av gymnasiereglerna den 26 november 2020
2020/21:RFR7	MILJÖ- OCH JORDBRUKSUTSKOTTET Lantbrukets sårbarhet – en uppföljning
2020/21:RFR8	FINANSUTSKOTTET Öppen utfrågning om finansiell stabilitet – Risker i kölvattnet efter covid19-pandemin
2020/21:RFR9	SOCIALUTSKOTTET Digital offentlig utfrågning med anledning av Coronakommissionens delbetänkande om äldreomsorgen under pandemin
2020/21:RFR10	FINANSUTSKOTTET Öppen utfrågning om den aktuella penningpolitiken den 16 mars 2021
2020/21:RFR11	CIVILUTSKOTTET Uppföljning av lagen om kollektivtrafikresenärers rättigheter – hur har lagen fungerat för resenärerna?
2020/21:RFR12	TRAFIKUTSKOTTET Offentlig utfrågning om järnvägens punktlighet
2020/21:RFR13	FINANSUTSKOTTET Öppen utfrågning om Riksbankens rapport Redogörelse för penningpolitiken 2020
2020/21:RFR14	MILJÖ- OCH JORDBRUKSUTSKOTTET Offentlig utfrågning om rapporten Lantbrukets sårbarhet – en uppföljning
2020/21:RFR15	FINANSUTSKOTTET Öppen utfrågning om Finanspolitiska rådets rapport Svensk finanspolitik 2021
2020/21:RFR16	SOCIALUTSKOTTET Digital offentlig utfrågning om sjukdomen ME/CFS och infektionsutlöst trötthetssyndrom
2020/21:RFR17	KONSTITUTIONSUTSKOTTET Nyheter i sociala medier – en forskningsöversikt av användning och effekter ur ett medborgarperspektiv

2021/22:RFR1	FINANSUTSKOTTET Öppen utfrågning om den aktuella penningpolitiken den 19 oktober 2021
2021/22:RFR2	SOCIALUTSKOTTET Socialutskottets offentliga utfrågning om precisionsmedicin
2021/22:RFR3	FINANSUTSKOTTET Öppen utfrågning om finansiell stabilitet – Sårbarheter och motståndskraft i ekonomin i ljuset av ökande skulder hos hushåll och kommersiella fastighetsföretag
2021/22:RFR4	FINANSUTSKOTTET Utvärdering av Riksbankens penningpolitik 2015–2020