

# The Riksbank's measures during the global financial crisis 2007-2010

Riksbank Study, February 2020



# Contents

FOREWORD 4

INTRODUCTION 5

1. THE SWEDISH FINANCIAL SYSTEM WAS SENSITIVE TO GLOBAL ECONOMIC DEVELOPMENTS 7

2. THE CRISIS SPREAD TO SWEDEN 9

3. THE ROLE OF THE RIKSBANK IS TO MAINTAIN PRICE STABILITY, AND TO PROMOTE A SAFE AND EFFICIENT PAYMENT SYSTEM 12

4. THE RIKSBANK EMPLOYED SEVERAL TOOLS DURING THE CRISIS 14

    Extraordinary liquidity provisioning 15

    Emergency liquidity assistance to specific institutions 22

    Swap lines to other central banks 25

5. LESSONS FROM THE CRISIS HAVE SERVED TO STRENGTHEN THE RIKSBANK'S CRISIS PREPAREDNESS 28

REFERENCES 32

ANNEX A. USD LENDING AUCTIONS 34

ANNEX B. SEK LENDING AUCTIONS 35

ANNEX C. PRESS RELEASES 38

## Foreword

This Riksbank Study describes the measures taken during the global financial crisis 2007-2010, when the Riksbank provided the Swedish banking system with extraordinary loans, provided emergency liquidity assistance to specific institutions, and limited crisis contagion through swap lines to neighbouring countries.

The study complements previously published work on how the Riksbank handled the crisis, by providing a chronological account of the series of events that unfolded in 2007-2010 and the corresponding Riksbank action. The study also outlines the lessons that the Riksbank learned from the crisis, and how these have served to strengthen our crisis preparedness.

The purpose of the study is to contribute to ongoing international initiatives to document case studies from actual financial crises.

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*The Executive Board of the Riksbank*

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## Introduction

### *The United States subprime crisis spread globally*

The Global Financial Crisis originated in the United States subprime housing market and spread globally. By the summer of 2007, tensions had affected key interbank markets and market participants moved to holding safe assets, became reluctant to lend, and borrowed at shorter maturities.

As these developments escalated, it prompted the major central banks to take swift action to calm markets by supplying liquidity, especially at longer maturities. When Lehman Brothers declared bankruptcy in September 2008, it triggered a confidence crisis in global markets whereby interbank rates skyrocketed as banks hoarded liquidity, and the global liquidity drought became a fact. This was when the crisis came to Sweden.

### *The Riksbank took measures to limit the effects on the Swedish financial system*

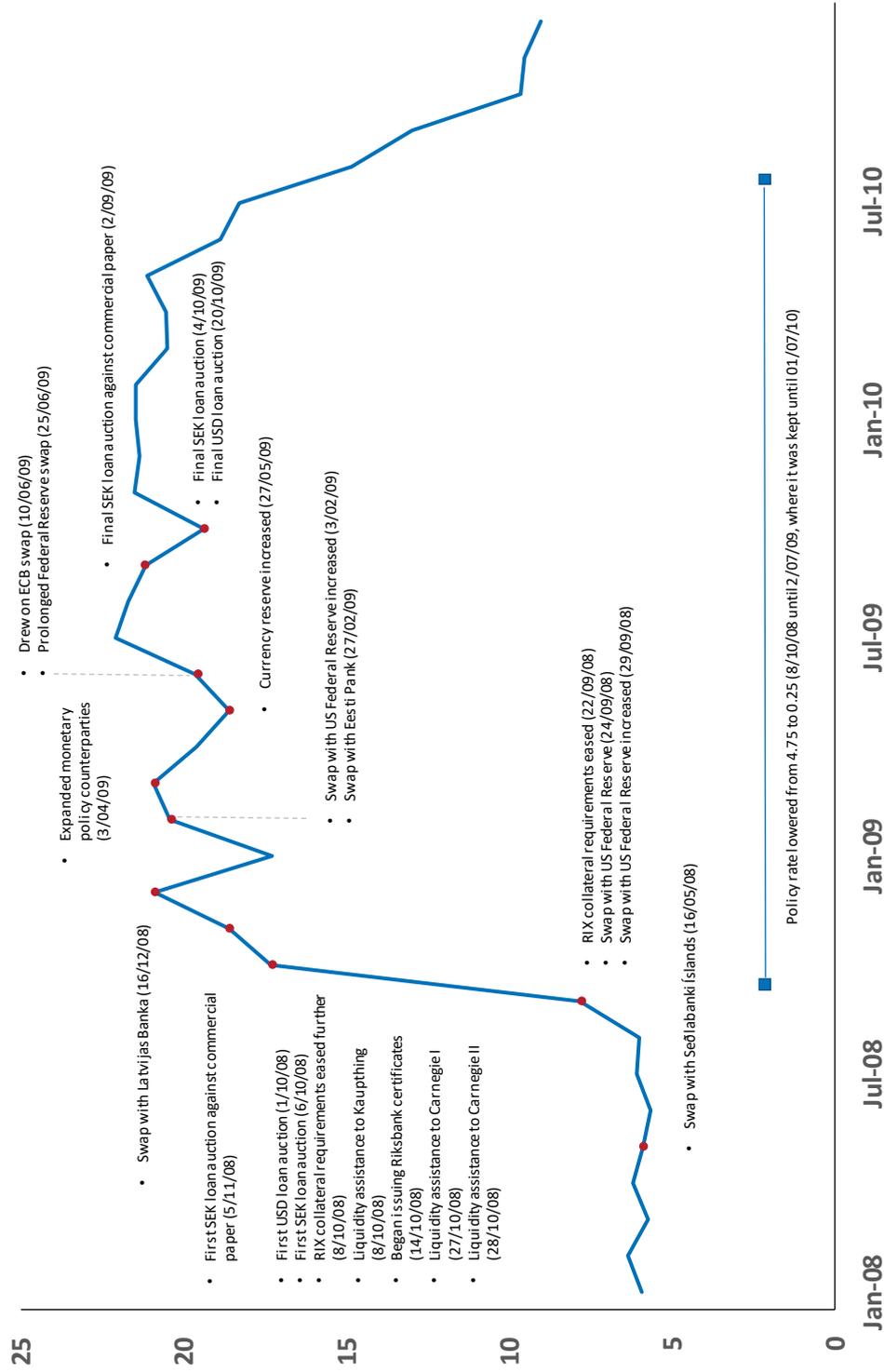
In an effort to stem negative repercussions on the Swedish financial system and to safeguard financial stability, the Riksbank implemented various crisis measures (see Figure 1). The first extraordinary measure entailed providing loans in US dollars (USD) to the Swedish banking system. Soon thereafter, the Riksbank began providing extraordinary loans in Swedish kronor (SEK) at longer maturities than in normal times. The Riksbank also broadened the range of eligible collateral and monetary policy counterparties, to ease the ability to borrow from the Riksbank.

Moreover, the Riksbank increased its foreign currency reserve to be adequately equipped to safeguard financial stability in Sweden. The Riksbank also supported specific institutions facing liquidity problems – Carnegie Investment Bank AB and Kaupthing Bank Sverige AB. At the time, these institutions were deemed systemically important. Furthermore, swap agreements were enacted with the central banks in Iceland, Estonia, and Latvia to help safeguard financial stability in the region. Over the course of nine months, the Riksbank also lowered the policy rate by 4.5 percentage points down to 0.25 percent. The Riksbank additionally communicated that interest rates would remain low going forward.

### *The study provides a chronological account of the Riksbank's crisis measures*

The handling of the crisis was a concerted effort by a number of Swedish authorities, which jointly contributed to easing the effects of the crisis on the Swedish economy and financial sector. This study describes the Riksbank's extraordinary measures during the period of 2007-2010, rather than the complete crisis management efforts of the Swedish authorities. To set the scene, the study begins with a brief description of the Swedish financial system, how the crisis spread to Sweden, and the role of the Riksbank. Then follows a chronological account of the various crisis measures, along with the Riksbank's reasoning behind the decisions taken. Finally, the study shares the Riksbank's key lessons learned from the crisis.

**Figure 1. The Riksbank's balance sheet, and selected crisis measures**  
 Balance sheet in percent of GDP



Source: Sveriges Riksbank

# 1. The Swedish financial system was sensitive to global economic developments

Being a small open economy with a large and concentrated banking sector, with significant cross-border operations, Sweden was sensitive to global economic developments going into the crisis. Four major banks (hereinafter referred to as “the banks”) dominated the Swedish banking system and their market share, measured as total lending, accounted for about 80 percent. These banks also had significant operations abroad, and thus had a considerable risk exposure in markets outside of Sweden – mainly in the Nordic-Baltic region. In 2008, about half of the banks’ lending was to borrowers outside of Sweden, making the Swedish financial system vulnerable to developments in these countries.

## *Swedish banks were highly dependent on wholesale funding*

Going into the crisis in 2008, deposits from the general public accounted for about half of the banks’ total funding, while the other half was comprised of wholesale funding – primarily in the form of bonds and commercial papers, in foreign currency as well as in SEK. This degree of reliance on wholesale funding was very high by international comparison, and partly due to the savings patterns of Swedish households. Pension- and insurance companies collectively managed a large part of household savings, and they in turn channelled the savings to capital market instruments.<sup>2</sup> Therefore, rather than gaining access to financing through deposits, the banks largely relied on capital markets to meet their funding needs.

Since the business model of banks is to lend at longer maturities, the high reliance on short-term funding meant that the banks were constantly in need of refinancing. For the system to function it was thus dependent on investors supplying liquidity by buying the banks’ debt instruments, such as commercial papers, senior unsecured bonds, and covered bonds.

During the crisis, the Swedish banks’ dependence on wholesale funding became a vulnerability for the Swedish economy. Globally, many market participants had difficulties assessing the creditworthiness of each other, were unwilling to enter into financial transactions, and preferred only to lend at very short maturities. This was also the case in Sweden. As a result, interbank rates rose to high levels, and the secondary market and repo market for covered bonds began to function all the more poorly.

## *A large part of the wholesale funding was denominated in foreign currency*

Going into the crisis, the Swedish banks were also highly dependent on foreign currency funding. In 2008, more than half of the Swedish banks’ funding was in currencies other than SEK. A particularly important investor group for the Swedish banks were money market funds in the United States, which tended to invest in the banks’ short-term fixed income securities. Historically this short-term financing had been readily available and constituted an important source of funding for Swedish-, Nordic, and, to a large extent, other European banks.

The Swedish banks conducted their short-term wholesale funding almost exclusively in foreign currency. The banks used part of this foreign funding to finance Swedish assets. Instead of issuing short-term securities directly in SEK, the banks opted to convert part of their foreign funding to SEK, using the currency swap market, to finance SEK-denominated assets.

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<sup>2</sup> For more details see Nilsson et al. 2014.

*Cross-border banking: Iceland and the Baltic countries*

The Nordic-Baltic countries are closely interlinked financially and economically, and from an investor perspective, a negative development in one country can impact the risk perception of the whole region.

Iceland went through an unprecedented credit boom prior to the global financial crisis, fuelled by capital inflows and the rapid international expansion of its banks. Iceland therefore had significant vulnerabilities going into the crisis. The Riksbank's Financial Stability Report published in June 2008 stated that *"the global credit turmoil has created concern among market participants with respect to the rapid expansion of the Icelandic banks"*.

Additionally, the Swedish banks had significant operations in the Baltic region. In 2008, two of the Swedish major banks were market leaders in all the Baltic countries, with combined market shares of over half of total lending in these countries. This meant that the economic development in the Baltic region had an impact on financial stability in Sweden.

The Riksbank had already begun warning about the economic developments in the Baltic region in the Financial Stability Report published in 2005. The Riksbank then gradually sharpened the tone in the reports published in the years leading up to the financial crisis. Hence, the ensuing developments, in both Iceland and the Baltic countries, were not entirely unexpected by the Riksbank.

In the summer of 2008, the Riksbank assessed that a dramatic economic slowdown in the Baltic countries, as previously warned, had occurred and risked developing into a pronounced economic downturn. The Riksbank further noted that, given the continued uncertainty in the financial markets and the deteriorating international economic outlook, the risk of a more pronounced economic slowdown in the Baltic countries had increased. The Riksbank assessed that such a scenario could reduce the creditworthiness of companies as well as households in the Baltic countries, which would have effects on the Swedish banks.

## 2. The crisis spread to Sweden

### *Looming signs in the major economies before the crisis hit Sweden*

The year before the crisis hit Sweden, there were already looming negative signs in the major economies. The first phase of the crisis lasted from spring to summer 2007. During this period, it was mainly banks and other institutions with exposures to the United States housing market, especially the subprime segment, that experienced problems. It was not only American banks that had exposures to subprime-assets. These assets had attracted investors from around the world, affecting also European banks. This triggered concerns globally, despite the problems being concentrated in a small segment of the American housing market. As house prices fell in the United States, it raised concerns about the housing markets in other countries. During this period, it was mainly the functioning of the market for Asset Backed Commercial Paper related to the American housing market that began to deteriorate. However, the interconnectedness of the structured investment vehicles (SIVs) that were dependent on this market for financing, and of the banks, meant that the interbank market was impacted.

The second phase of the crisis lasted between the autumn of 2007 and the summer of 2008. During this period, problems spread to a wider range of assets, as concerns mounted over where risks would materialise and the possible scale of future losses. The markets where banks raise liquidity were impaired and liquidity became harder and more expensive to come by. Credit markets functioned less well, equity prices fell, and foreign exchange markets became volatile. These developments prompted the major central banks to take action. In August 2007, the US Federal Reserve cut its discount rate (the rate at which the Federal Reserve lends to depository institutions) and subsequently began to ease monetary policy in September 2007. The European Central Bank (ECB) took extraordinary action in August 2007 in response to stress in the money markets and temporarily provided additional liquidity to banks with immediate liquidity needs.

In the autumn of 2007, the Riksbank began collecting additional liquidity data from the four major Swedish banks to follow their liquidity situation at a higher frequency. The liquidity data was central for the Riksbank to be able to assess the situation. In addition, the Riksbank intensified bilateral discussions with the banks.

In December 2007, the Federal Reserve, the Bank of Canada, the Bank of England, the ECB, and the Swiss National Bank announced measures to handle the increased pressure on the markets for short-term financing. The Federal Reserve introduced extraordinary lending to the US banking system, and set up bilateral swap agreements with the ECB and Swiss National Bank – which increased these central banks' possibilities of lending USD to their banking systems.

On 12 December 2007, the Riksbank issued a press release describing the measures taken by the major central banks. The Riksbank further stated that it was monitoring developments closely and stood ready to take the necessary measures if the need should arise. The Riksbank also shifted to a heightened operational level of internal crisis preparedness.

The worrying signs in the financial markets in the United States and Europe also prompted the Riksbank to ask the ECB for a swap line in 2007. The swap line was a precautionary measure which enabled the Riksbank to borrow up to EUR 10 billion from the ECB, in exchange for SEK. The agreement was signed in December 2007.

### *Market turbulence induced by the bankruptcy of Lehman Brothers affected the Swedish financial system*

When Lehman Brothers filed for bankruptcy on 15 September 2008, it induced severe market turbulence to the point where some markets ceased to function. The markets were startled by the fact that the US authorities had allowed a financial institution of

Lehman Brothers' size and degree of interconnectedness in the financial system to go bankrupt. Given that Bear Sterns had been bailed out in March 2008, it made markets unsure of how the authorities would act with regard to other institutions. Market participants' counterparty risk and contagion risk increased dramatically as the confidence amongst banks fell drastically worldwide. The banks hoarded liquidity and became unwilling to lend to one another. Interbank rates shot up, CDS premiums for financial institutions rose sharply, and major funding markets were affected globally. This financial turbulence had a direct impact on the Swedish banks, not least due to their reliance on USD funding markets.

The financial stress was systemic in nature and induced a flight to quality, causing international investors to seek US Treasury bills. This in turn impacted other markets, such as the Swedish covered bond market. Domestic demand for Swedish government securities also soared.

On 18 September 2008, the Riksbank issued a press release to calm markets. The Riksbank stated that it was monitoring financial market developments closely, and that the banks' margins for unexpected costs remained satisfactory.

After consultation with the Riksbank, the Swedish National Debt Office (SNDO) decided to issue large additional volumes of Treasury bills in several extra auctions starting on 19 September 2008. The SNDO primarily lent the money generated to banks in so-called reverse repo transactions with covered bonds as collateral. In essence, this meant that the SNDO allowed market participants to exchange covered bonds for Treasury bills, thereby taking on part of the risk related to the mortgage market, which relieved some of the liquidity strain on the financial sector.

The Governor of the Riksbank, Stefan Ingves, has said that *"it was excellent that the National Debt Office was able to solve the problem this way. But roles were undeniably reversed as the National Debt Office basically took over the Riksbank's role as the institution that is quickly able to supply money to the financial system, in other words it took on the role of lender of last resort. However, the Riksbank did not have everything in place to be able to supply liquidity to banks at such short notice. The preparations for such operations had been going on for some time and they were ready in principle – just a few weeks later the Riksbank began lending dollars and krona to the banks. But on that day, right then, we were not able to do it and that was naturally a very important lesson for the Riksbank to learn"*.<sup>3</sup>

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<sup>3</sup> See Ingves 2018.

**Box 1. The global financial crisis compared to Sweden's 1990s banking crisis**

The global financial crisis (GFC) affected Sweden from abroad and generated a liquidity crisis. The Swedish banking crisis in the 1990s, on the other hand, was idiosyncratic in nature, with home-grown problems. In 1991-1993, the Swedish banking sector suffered solvency problems and the economy fell into a severe recession. The crisis affected six of the seven largest banks in Sweden, which jointly held a market share of 85 percent of total lending. The banking crisis coincided with, and was aggravated by, a currency crisis that led to the krona depreciating by 25 percent.

Compared to the 1990s crisis, the GFC was set against a backdrop of much more complex financial instruments and interlinked markets, both domestically and across borders. Another difference was that the Swedish economy and banking sector were in good health when heading into the GFC. Sweden had sound public finances, which was partly a result of fiscal policy measures put in place in response to the 1990s crisis. The sharp decline and subsequent recovery in Swedish GDP during the GFC was partly due to the fact that Sweden is a small, open economy and was therefore strongly affected by developments in other countries.

During the GFC, the Swedish banks experienced liquidity problems rather than insolvency problems. The rapid liquidity provisioning from the authorities likely prevented a liquidity crisis from turning into a solvency crisis. This also meant that the Swedish deposit guarantee, which, essentially, was not in working order, did not need to be used for Swedish banks.<sup>4</sup>

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<sup>4</sup> When the Swedish credit institution Custodia was declared bankrupt in 2006 it revealed flaws in the Swedish deposit guarantee system, whereby disbursements of compensation to depositors were severely protracted. For details about the Custodia case, see Sveriges Riksbank 2006. Also see Ingves 2018.

### 3. The role of the Riksbank is to maintain price stability, and to promote a safe and efficient payment system

The Riksbank's mandate, as defined by the Swedish Parliament in the Sveriges Riksbank Act, is to maintain price stability, and to promote a safe and efficient payment system.

#### *The Riksbank works to maintain price stability by keeping inflation low and stable*

The Riksbank conducts monetary policy aiming at an inflation target of two percent. When the Riksbank adjusts the policy rate, it affects the economy through a chain of effects. It first affects interest-rate setting and the financial conditions in the economy, and then affects demand, production, inflation, and the exchange rate.

The Riksbank also publishes an interest rate path, which is a forecast of the future level of the policy rate that is compatible with the inflation target. In this way, the Riksbank can attempt to influence expectations of future policy rates and thereby affect interest rate setting in the economy at longer maturities. This chain of effects is referred to as the monetary policy transmission mechanism.

#### *The Riksbank interprets the role of promoting a safe and efficient payment system as a task to promote financial stability*

The Riksbank defines financial stability as the financial system being able to maintain its basic functions – the mediation of payments, the conversion of savings into funding, and risk management – as well as being resilient to shocks that threaten these functions.

The Riksbank continuously works to uphold financial stability by taking measures to prevent disturbances in the financial system from arising and having negative repercussions on the real economy. The tools used for promoting financial stability during normal times include performing and communicating analysis to identify vulnerabilities and risks in the financial system (for example, by publishing a Financial Stability Report twice a year), conducting crisis management exercises, and actively contributing to work on improving financial regulatory frameworks in Sweden and globally.

#### *The Riksbank shares the role of upholding financial stability with three other state agencies*

During the crisis the responsibility for upholding financial stability was shared with the Swedish Financial Supervisory Authority (banking, insurance and financial markets supervision), the SNDO (deposit insurance scheme and guarantees), and the Ministry of Finance (work on financial legislation and, for example, bank support packages that have an impact on the government budget). The interaction between the authorities was important both in preventive work and in crisis management. During the crisis, cooperation between the authorities, and speaking with one voice, served to boost confidence in the Swedish financial system.

#### *Financial stability and monetary policy are mutually dependent*

The Riksbank's objectives are to maintain price stability and financial stability, and the instruments used are monetary policy and financial stability policy. In practice, monetary policy and financial stability policy are closely intertwined. Without a stable financial system, it becomes difficult to conduct effective monetary policy, as the transmission mechanism will be hampered. Likewise, the economic consequences of a financial crisis would directly affect price stability, economic growth and employment.

During the crisis, the monetary policy transmission mechanism ceased to function properly. As risk premiums in the financial markets increased, the Riksbank's changes to the policy rate did not yield the intended effects. Moreover, when it became difficult for the banks to access market financing, it inhibited the supply of credit to households and firms, thus threatening both financial stability and the macro economy at large.

Therefore, the Riksbank implemented measures during 2007-2010 aimed at maintaining the functionality of the financial system. Most of the measures contributed to maintaining financial stability, as well as price stability. For example, measures that helped to restore confidence in financial markets also helped to push down interest rates and improve access to credit – such as in the winter of 2008, when the risk of a credit crunch was a concern.

Improving access to credit also had a direct effect on investments and the macro economy, and increased the impact of monetary policy by improving the transmission mechanism. Similarly, the Riksbank's interest rate cuts also helped to restore financial stability by improving credit growth. The measures that the Riksbank took during the crisis thus complemented one another in a mutually reinforcing manner.

#### *The Riksbank has a range of crisis management tools*

The Riksbank has several tools at hand to promote price stability and financial stability. Other than changing the policy rate, the Riksbank can use its balance sheet. For example, the Riksbank can offer loans to a group of counterparties at predefined terms. By offering credit to market participants in this way, the Riksbank can support the financial system. Credit can be provided in SEK as well as in foreign currency.

The Riksbank can also provide emergency liquidity assistance (ELA) to individual institutions in exceptional circumstances. Such credit can be provided on special terms, but only to solvent individual financial institutions that have liquidity problems of a temporary nature. The purpose of such liquidity assistance is to avoid liquidity problems spreading and ultimately impairing the functioning of the financial system. The Riksbank can essentially provide some of the funding for a bank when the capacity or risk appetite of the private sector wavers. As a result, the risk associated with the funding of the bank is transferred from the private sector to the Riksbank's balance sheet.

The Riksbank is also able to engage in lending to other central banks for exchange rate policy purposes, which includes for monetary policy purposes as well as for the purpose of mitigating crises in the international payment system.

## 4. The Riksbank employed several tools during the crisis

This chapter describes the extraordinary measures taken by the Riksbank during 2007-2010. To set the context, the study briefly references crisis measures taken by other authorities, and describes the Riksbank's practical implementation of monetary policy. Then follows a description of the Riksbank's extraordinary liquidity provisioning in SEK and USD to the Swedish banking system. It then covers the Riksbank's emergency liquidity support to specific institutions, Carnegie Investment Bank AB and Kaupthing Bank Sverige AB. Finally, it describes how the Riksbank contributed to limiting crisis contagion in the region by providing swap lines to neighbouring countries.

### *Measures by other Swedish authorities*

The Riksbank's liquidity provisioning must be viewed in the context of measures taken by other authorities in Sweden. The Financial Crisis Committee has evaluated the concerted efforts taken by the Swedish authorities during the crisis:<sup>5</sup>

*"In the Committee's opinion, the Government and the Riksbank acted promptly, transparently and forcefully in response to the problems."*

A number of important actions taken by other authorities complemented the Riksbank's crisis measures. For example, under the stability plan the "Government Support to Credit Institutions Act" (2008:814) was passed, which gave the Government the means and fiscal mandate to employ crisis management measures. It also enabled the SNDO to step in as guarantor on part of a bank's debt, enabling the banks to borrow at longer maturities and without collateral. The Government also implemented a capital injection programme to boost bank lending to households and companies. In terms of liquidity provisioning, it is important to note that the SNDO's guarantee programme complemented the Riksbank's lending.<sup>6</sup>

### *The Riksbank used market operations and standing facilities to implement monetary policy<sup>7</sup>*

The Riksbank aimed to steer the interest rate on loans from today to the next banking day (known as the overnight rate). This in turn affected the market interest rates for longer maturities through market expectations of the future path of the overnight rate.

To steer the overnight rate, the Riksbank used weekly market operations conducted every Tuesday to balance the banking sector's net position against the Riksbank. These operations were carried out at the policy rate at the time, and to adjust for fluctuations in banks' net position during a following week, the Riksbank complemented weekly market operations with so-called daily fine-tuning operations. These operations were carried out at the spread of 0.1 percentage points to the policy rate.

Standing facilities complemented market operations and fine-tuning operations. The Riksbank had a standing lending facility where its counterparties were able to obtain overnight credit in SEK against certain types of pre-approved collateral at the policy rate plus a spread of 0.75 percentage points. There was also a corresponding facility enabling banks to deposit money overnight, receiving the policy rate minus 0.75 percentage points.<sup>8</sup> In this way, the Riksbank would help the banking system balance its liquidity overnight if the banks were not able to do so among themselves on the interbank market.

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<sup>5</sup> See the Financial Crisis Committee 2013.

<sup>6</sup> See Bryant et al. 2012.

<sup>7</sup> See Sveriges Riksbank 2019b.

<sup>8</sup> In practice, this translated into a negative overnight deposit rate after July 2009 when the policy rate dropped below 0.75.

## Extraordinary liquidity provisioning

On 22 September 2008, the Riksbank took its first concrete crisis management measure by changing the collateral requirements in RIX (the central system for large value payments between banks and other financial institutions in Sweden). The Riksbank did this by raising the permitted share of an institution's own covered bonds, or the covered bonds of a closely affiliated institution, that RIX participants could use as collateral in the system, from 25 to 75 percent. Later on, this share was raised to 100 percent.<sup>9</sup> By taking this measure, the Riksbank eased the collateral requirements for counterparties seeking credit through the standing facilities and intra-day credit in the RIX payment system. This made it easier to borrow from the Riksbank. It also led to an improved liquidity situation in some markets – for example, the covered bond market – since assets accepted as collateral by the central bank typically become more liquid.

In essence, by taking covered bonds as collateral, both the Riksbank and the SNDO (which lent money generated in Treasury bill auctions to banks in so-called reverse repo transactions with covered bonds as collateral) absorbed private sector risk, by swapping more risky collateral for safer claims on the Riksbank or SNDO.

*The Riksbank established new and supplementary lending modalities to improve liquidity in the banking system during the crisis*

During the crisis, the Swedish interbank market, unlike those of many other countries, actually continued to function for the very shortest maturities and the banks did not utilise the standing facility. However, Swedish banks had difficulties borrowing at longer maturities. The financial stress in long-term funding markets also caused volatility in short-term interest rates. To counter these effects, and make it easier for the banks to obtain short-term funding, the Riksbank conducted open market operations to improve liquidity in the banking system by:

- offering loans in SEK at longer maturities than normal (one, three, six and twelve months, as opposed to overnight and one week)
- offering short-term loans in foreign currency (USD) at one and three months
- expanding the list of types of collateral accepted in the RIX standing facility
- expanding the group of counterparties that could borrow from the Riksbank

### Extraordinary liquidity provisioning in domestic currency

*The Riksbank provided the banking system with extraordinary SEK loans*

In considering whether to take extraordinary measures, one of the core trade-offs entailed ensuring the functioning of financial markets and maintaining financial stability, while minimising the risk of moral hazard. After deliberation and analysis of the banks' liquidity situation, the Riksbank concluded that extraordinary loans as a precautionary measure was the best way forward. On 29 September 2008, the Riksbank announced that it would provide USD loans to the Swedish banks (see section Extraordinary liquidity provisioning in foreign currency).

A few days later, on 2 October 2008, the Riksbank announced that it would also provide loans in Swedish krona of SEK 60 billion with a maturity of three months. The purpose was to increase the Swedish banks' access to funding. As the situation in the financial markets deteriorated, it became evident that further support was needed. Therefore, on 6 October, the Riksbank announced that it would increase the sum by SEK 40 billion, to SEK 100 billion. This was communicated in a press release, alongside a statement by the Governor of the Riksbank, Stefan Ingves, intended to calm markets. The press release stated that the international financial turbulence was now clearly

<sup>9</sup> The lowest accepted credit rating was later also lowered from A to A-, to harmonise with collateral requirements at the EU-level.

affecting the Swedish financial markets, and that the extraordinary loans were intended as a preventative measure. The Governor also gave a reassurance that further action could be taken if deemed necessary.

The loans soon turned into a large-scale extraordinary lending programme as the crisis deepened. The purpose of the programme was to facilitate the access of Swedish banks to loans at longer maturities. By announcing in advance the dates at which the loans would be provided in the period ahead, the Riksbank aimed to create predictability and thus better possibilities for the banks to plan their liquidity management. Through an iterative process, the lending modalities were tweaked to the observed conditions in the markets, as well as the outcome of earlier loan auctions to yield the desired impact.

*The Riksbank's loans had fixed and variable interest rates*

A number of deliberations went into the terms at which the extraordinary loans were issued. During the first auctions (6 October 2008 to 9 February 2009), the loans were offered at a fixed interest rate, defined as the policy rate at the time of the auction plus a premium. During this period, the Riksbank also pursued highly expansionary monetary policy in other ways, for instance by lowering the policy rate significantly, and the market was expecting further cuts. This anticipation made the banks unwilling to borrow larger volumes. The Riksbank therefore decided to switch to lending at variable rates, defined as the average policy rate during the borrowing period plus a premium. The auctions of loans at variable rates were held from 23 February 2009 until 4 October 2010.

*The Riksbank priced the loans to reflect interest rate levels in normal times whilst not subsidising the banks*

In pricing the extraordinary loans, the Riksbank attempted to strike a balance between pricing the loans cheaper than the market cost during stressed crisis times, but still above the banks' cost of market funding during normal times. The Riksbank did not want the loans to become a substitute to normally functioning markets, nor a subsidy to the banking sector, as the Riksbank wanted the banks to have an incentive to return to market financing when possible. Therefore, the premium above the policy rate was set to strike a balance between these two objectives. In addition, the premium helped avoid a negative net interest income for the Riksbank.

*The loans had a maturity term of one, three, six, and later twelve months*

A similar balance had to be achieved in deciding the maturity term of the loans. While the maturity term had to be long enough to allow the banks to improve their liquidity situation, the loans were not to run for too long, as this would risk undermining the functioning of the markets where the banks fund themselves.

The loans were issued with a maturity term of one, three, and six months – with the bulk of the issued loans having a maturity of three and six months. In May 2009, the Riksbank decided to also provide loans with twelve months maturity. The first auction for a twelve-month loan was held on 1 June 2009. By extending the maturity, the Riksbank further improved the banks' ability to plan their access to liquidity. Thereby, the Riksbank intended to contribute to support the supply of credit to firms.

*The loans were distributed using auctions*

The Riksbank used a uniform pricing mechanism. Ahead of the auctions, the minimum interest rate and the offered loan volume were communicated. During the auctions, the banks placed bids at or above the minimum rate. The loans were then allocated in descending order from the highest bid until the full offered volume was reached. The lowest accepted interest bid became the interest rate that applied to all borrowing banks.

*Loans with commercial paper as collateral*

Prior to the decision to give twelve-month loans, the Riksbank attempted to facilitate credit reaching non-financial firms through another extraordinary measure – lending to banks with commercial paper as collateral.<sup>10</sup> The reason was that the commercial paper market was functioning poorly, partly due to rising risk premiums. The loans were offered to banks through auctions that were held approximately once a fortnight from November 2008 to September 2009. However, the banks' demand for these loans was very low. In total, out of SEK 790 billion offered, only bids for SEK 8.7 billion were received. This was probably because it was cheaper for the banks that had the required collateral to borrow through the ordinary SEK loan programme. In practice, these loans would only appeal to a bank that lacked "ordinary" collateral but had access to commercial papers with a rating of A-2/P-2, or that lacked a rating.

*The Riksbank issued weekly certificates to manage banks' excess liquidity*

As the Riksbank provided extraordinary loans to the banks, they built up excess overnight liquidity towards the Riksbank. This intentionally added to the downward pressure on interbank interest rates at the time of acute stress. However, as the situation normalised, the excess liquidity started to push interbank interest rates below the policy rate. To stabilise interbank interest rates closer to the policy rate, the Riksbank, on 10 October 2008, announced that it would issue Riksbank certificates. These instruments soaked up some of the excess liquidity that the banks did not need for their daily liquidity management. The Riksbank certificates had a maturity of seven days, and the interest rate was set at the policy rate.

*The Riksbank established the group "restricted monetary policy counterparties"*

Although the Riksbank supplied large quantities of liquidity to the banking system, the extra liquidity had a limited reach to banks that were not monetary policy counterparties. Since the markets were not functioning normally, there was a risk that these institutions would not supply credit to households and firms. The Riksbank therefore decided to review the circle of eligible counterparties in the extraordinary lending operations.

At the time, the requirement to be a monetary policy counterparty was that the institution was a credit institution, based in Sweden or with a Swedish branch, and a RIX participant. As a widening of the group of RIX participants was not considered an appropriate solution at the time, the Riksbank explored other alternatives.

The solution, communicated on 3 April 2009, was to create a group called "restricted monetary policy counterparties". The difference between a regular monetary policy counterparty and the restricted group was that for the latter the requirement to be a RIX participant was removed.

During this period, there were also parallel discussions regarding the scope for the Riksbank itself to buy securities – such as government bonds, covered bonds or even corporate bonds.<sup>11</sup>

*As monetary policy was not having the intended effect on the real economy, the Riksbank began offering large, long-term, fixed-rate loans*

While the banks' financing situation gradually eased in 2009, the outlook for the real economy remained gloomy. Since economic activity abroad was weak, it affected Sweden through the export channel. The labour market situation was also deteriorating.

<sup>10</sup> These loans had lower collateral requirements than the ordinary SEK loans. The Riksbank accepted commercial papers from non-financial listed companies domiciled in Sweden, with a credit rating of at least A-2/P-2 or equivalent. Collateral could also be accepted if the bank could show that the company had an internal rating corresponding to A-2/P-2.

<sup>11</sup> In the spring of 2012, the Riksbank decided to supplement the monetary policy toolbox by acquiring a limited bond portfolio in Swedish krona. This measure meant that the Riksbank ensured it would have the systems, routines, and knowledge needed to be equipped to implement extraordinary measures at short notice in the future. In 2015, the Riksbank began buying government bonds as an unconventional monetary policy measure to increase inflation towards the target.

The Riksbank worried that monetary policy was not having the intended effect on the real economy, and an idea emerged to give supplementary large, long-term, fixed-rate loans to the banks to address this issue. The intention was that such loans could work as a commitment device and reinforce the communication that the interest rates would stay low for a long period. These loans therefore had more of a monetary policy dimension than the loans described thus far, but they were also aimed at continuing to support the banks' liquidity situation – the purpose was thus not only monetary policy oriented. The aim was that these loans would lower the financing costs for the banking system, which would then pass through into lower interest rates for households and firms.

At a monetary policy meeting on 1 July 2009, the Riksbank decided to begin offering this type of large, fixed-rate, long-term loan. At the same time, the Riksbank lowered the policy rate by 25 percentage points, down to 0.25 percent, which was an all-time low at the time. In addition, the Riksbank communicated that the policy rate would remain low. On 13 July 2009, the Riksbank held the first auction for a large fixed-rate loan, at SEK 100 billion with a maturity of one year. The loan had the same low interest rate as the Riksbank's policy rate projection.<sup>12</sup>

Another two large loans of the same kind (fixed-rate loan, at SEK 100 billion and with a maturity of one year) were decided at the monetary policy meetings in September and October the same year. The auctions garnered high demand – two out of three were oversubscribed.<sup>13</sup> These three loans also caused a lower demand for the loans at variable rate.

#### *The Riksbank gradually phased out the extraordinary loans in 2010*

As the banks' demand for Riksbank loans lessened, the outstanding amount of loans at variable rates decreased. The Riksbank continued closely monitoring the banks' liquidity data. Eventually the banks demand for the loans became so low that the Riksbank decided to start phasing out the lending in a gradual manner. The Riksbank assessed that simply the existence of the loan auctions and the opportunity of acquiring financing from the Riksbank had a stabilising effect on markets in itself. The Riksbank therefore decided to continue offering SEK loans with a maturity of three, six, and twelve months, but with an increased minimum interest rate.

The final phase of lending to the banks commenced on 31 May and ended on 4 October 2010. The loans offered had a maturity of one month and the interest rate was variable, like before. The idea behind these loans was primarily to keep sending a calming signal to the markets. The intention was also that these loans would be an aid during the period when the three large fixed-rate loans matured.

During the final lending period, six auctions were held. In the second auction, on 28 June, SEK 50 billion was offered, but only SEK 20 billion allocated. In the subsequent auction, on 26 July, SEK 25 billion was offered but only SEK 5 billion allocated. As there had been no bids in the ten previous auctions, it is therefore likely that the banks borrowing in the auctions did so in order to cover a part of the large fixed-rate loans that matured at that time. During the last three auctions, there were no bids. As the loans matured, the Riksbank lending was terminated when the last krona was repaid in January 2011.

<sup>12</sup> The Riksbank set a minimum level for the interest rate that was equal to the policy rate with an addition of 0.15 percentage points, which amounted to 0.40 percent. The loans were allocated at interest rates of 0.45, 0.43 and 0.40 percent respectively.

<sup>13</sup> For more information about the three large fixed-rate loans, see Elmér et al. 2012.

### Extraordinary liquidity provisioning in foreign currency

#### *The Riksbank offered extraordinary USD loans to the banking system*

After the bankruptcy of Lehman Brothers, US money market funds, in all essentials, stopped engaging in transactions with European banks. The reason was that they were worried about European banks' exposures to Lehman Brothers and to subprime loans in the United States mortgage market, through their holding of securities. Demand, relative to supply, for USD liquidity increased drastically among European banks. These developments severely hampered the Swedish banks' access to USD borrowing.

The Riksbank monitored the banks' liquidity data closely and assessed their difficult USD financing situation to constitute a threat to the functioning of the Swedish payment system, and to the supply of credit to firms and households.

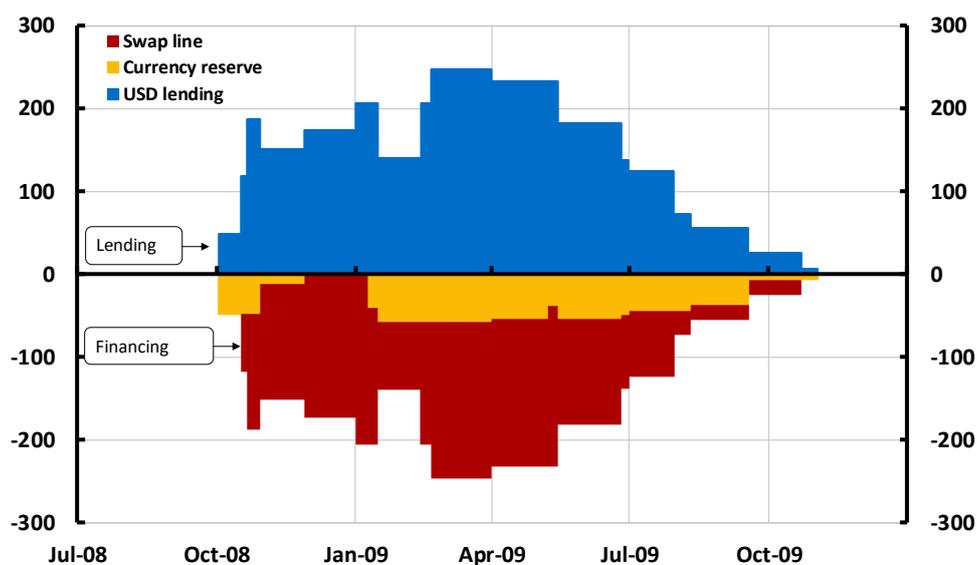
#### *The loans were largely financed by a swap line from the Federal Reserve*

In September 2008, the Riksbank began borrowing USD liquidity through repo transactions using USD denominated bonds held in the currency reserve. This was a precautionary measure to secure liquidity, in order to be able to provide the banks with USD in case of need. It soon became clear that the amount of USD in the currency reserve could prove insufficient to meet potential liquidity needs of the Swedish banks.

While the Riksbank is able to create domestic currency through a simple lending procedure, this is not the case for foreign currency. To lend USD, the Riksbank first has to acquire it – for example by exchanging SEK for USD, selling financial assets denominated in USD, or conducting repo transactions. The Riksbank can also borrow from the SNDO. Another possibility is for the Riksbank to ask to borrow directly from the Federal Reserve through a swap agreement.<sup>14</sup> During the crisis, the size of the Riksbank's currency reserve became insufficient to deal with the magnitude of the crisis, and a swap line with the Federal Reserve therefore financed a majority of the Riksbank's USD lending (see Figure 2).

Figure 2. USD lending and financing

SEK billion



Source: Sveriges Riksbank

<sup>14</sup> A swap agreement entails exchanging a currency in return for another currency for a predetermined period according to specific conditions.

On 24 September 2008, the Riksbank and the Federal Reserve agreed on a USD 10 billion swap line as a precautionary measure to improve the Riksbank's ability to provide extraordinary loans in USD. It was announced in an internationally coordinated press release that read;

*"Today, the Federal Reserve, the Reserve Bank of Australia, Danmarks Nationalbank, Norges Bank and Sveriges Riksbank are announcing the establishment of temporary reciprocal currency arrangements (swap lines) to address elevated pressures in US dollar short-term funding markets. These facilities, like those already in place with other central banks, are designed to improve liquidity conditions in global financial markets. Central banks continue to work together during this period of market stress and are prepared to take further steps as the need arises."*

The statement also included a paragraph where the Riksbank communicated that financial stability was satisfactory in Sweden and that the Swedish banks remained profitable and solvent. The Riksbank further noted that the swap line was a precautionary measure in order to have additional flexibility to provide USD liquidity if the need should arise.

During the days that followed, the situation deteriorated further in the global financial markets. On 29 September 2008, the Federal Reserve informed that they would triple the extraordinary lending to the United States banking system. At the same time, they offered to increase the size of their swap lines with other central banks. The Riksbank accepted this offer, and the swap line was expanded to USD 30 billion. As the financial situation had deteriorated, the Swedish banks' access to USD also tightened. The Riksbank therefore decided to start lending USD to the Swedish banks. On 29 September 2008, the Riksbank issued a press release that informed of the expanded swap agreement with the Federal Reserve, and at the same time announced that the Riksbank would begin to offer USD loans to the Swedish banks.

Between 1 October 2008 and 20 October 2009, the Riksbank supplied the Swedish banking system with USD loans. During this period, 17 auctions were held, in which the Swedish banks were offered loans amounting to USD 149 billion. The total sum lent was USD 100 billion, and the outstanding sum peaked at USD 30 billion.

The Riksbank decided to use the currency reserve to finance the first USD loan. There was also an explicit expectation from the Federal Reserve that the central banks that had swap agreements would also use their currency reserves as a source of financing to a certain extent. The Riksbank also used the currency reserve in the continued USD lending to banks, although the majority of the financing came from the Federal Reserve swap line.

#### *The terms of the USD loans were set to align with other central banks*

The maturity term was set to one and three months, which was the same maturity terms at which the Federal Reserve provided their loans. The pricing of the loans was designed to provide relief for the banks, while maintaining incentives for banks to seek financing in the markets when possible, and not to provide too large a subsidy to the banking system. Therefore, the Riksbank offered the USD loans at the over-night index swap rate corresponding to the offered maturity term, plus a premium.

In deciding the terms, the Riksbank looked closely at how the ECB and Bank of England had designed their loans. The Riksbank also had close cooperation with Danmarks Nationalbank and Norges Bank to harmonise the pricing and terms of the USD loans. This was important, ensuring that cross-border banks could not exploit differences across central banks.

The Riksbank offered the loans through auctions to its primary monetary policy counterparties.<sup>15</sup> Ahead of the auctions, the minimum interest rate and the offered loan

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<sup>15</sup> The primary monetary policy counterparties were Danske Bank, Handelsbanken, Nordea, SEB, and Swedbank.

volume were communicated. During the auctions, the banks placed bids at or above the minimum rate. The loans were then allocated in descending order from the highest bid until the full offered volume was reached. The lowest accepted interest bid became the interest rate applied to all borrowing banks.

#### *High demand in the auctions*

On 29 September 2008, the Riksbank announced the extraordinary loans in USD. The first auction was held on 1 October, offering USD 7 billion with a maturity of one month, and a second auction was scheduled to be held on 22 October, offering USD 15 billion with a maturity of 3 months. However, as demand was very high in the first auction, and market turbulence persisted, the Riksbank decided to hold an extra auction already on 15 October, offering USD 10 billion with a maturity of 3 months. The auctions on 15 and 22 October were both fully subscribed.

On 30 October 2008, the first loan (of USD 7 billion) matured and the Riksbank extended it with a loan that had the same maturity term of one month. When the time came to extend it again, the Riksbank extended the maturity to 3 months, partly to prevent it from maturing during the New Year holiday.

In the middle of January 2009, the outstanding amount of loans was reduced when an auction offering USD 10 billion with 1 month's maturity only received bids of USD 2 billion. This event raised the question of whether the loans had become too expensive. In the end, the Riksbank assessed that it was because the stress on the markets where banks would finance themselves over a term of up to a month had eased.

#### *The Riksbank continued offering USD loans due to the deteriorating financial situation in the Baltic countries*

During the spring of 2009, the outstanding sum of USD lending peaked at USD 30 billion, and towards the end of spring, the banks' ability to finance themselves in the markets had improved. Although the general funding situation in USD had improved, Swedish banks were now facing a renewed wave of stress. The financial situation in the Baltic countries was deteriorating, which worried the Riksbank, given the Swedish banks' significant operations in the region. The Riksbank therefore decided to continue offering USD loans, but from February 2009 only with a three month maturity.

#### *The Riksbank increased its currency reserve*

On 27 May 2009, the Riksbank decided to increase the currency reserve by borrowing the equivalent of SEK 100 billion. The crisis had illustrated that the currency reserve became insufficient to provide liquidity assistance to the Swedish banks. On top of that, the Riksbank had increased its commitments to other central banks and international organisations. As the banks funded a significant part of their operations in foreign currency, the currency reserve had to be able to meet the needs of the banks when necessary to safeguard financial stability.

The SNDO raised the financing for the currency reserve. To ensure that the Riksbank would have a sufficiently large currency reserve during the period when the borrowing from the SNDO took place, the Riksbank announced that it would use EUR 3 billion of the ECB swap line for three months. The press release stated that the Riksbank utilised the swap line to ensure that the Riksbank would be well prepared to continue safeguarding financial stability.

#### *The banks' demand for the loans decreased as market conditions improved*

By the summer of 2009, the banks' access to USD financing in the markets had clearly improved and the cost of funding had gone down. Even though demand for the Riksbank's loans was lower, it was decided that three final loans of USD 5 billion each would be offered in September, October, and December 2009, to keep sending a calming

signal to the markets. No bids were received at the auctions held in September and October, and on 3 November 2009 all outstanding loans had matured. There was no demand for the loans and the banks could now secure their dollar financing in the markets. The same development was also observed by other central banks providing USD lending facilities. On 19 November 2009, the Riksbank announced that the USD lending would be discontinued, but that it could quickly be reinstated if the market situation should deteriorate.

Overall, the demand for the Riksbank's USD loans was high during the duration of the USD lending, and it had the desired effects. The extraordinary loans had a stabilising effect on the banking sector and were a contributing factor to the lowering of market rates.

## Emergency liquidity assistance to specific institutions

Liquidity problems in the banking sector can cause financial instability and disrupt the monetary policy transmission mechanism, resulting in negative effects on the economy. To address such issues, the Riksbank can, under the Sveriges Riksbank Act, provide emergency liquidity assistance (ELA) to banks and certain other institutions under the supervision of the Swedish FSA. Such targeted liquidity support can be used, for example, when problems in one institution risk causing contagion to other parts of the financial system, i.e. when the institution is assessed to be systemically important.

In order to be eligible for ELA from the Riksbank, an institution cannot have any evident solvency problems, due to the division of tasks between the Riksbank and the Government. When receiving ELA, the borrowing institution becomes a counterparty to the Riksbank and its risk taking can thus directly affect the Riksbank's balance sheet and credit risk.

### *ELA to Kaupthing Bank Sverige AB and Carnegie Investment Bank AB*

In the autumn of 2008, the Riksbank provided ELA to Kaupthing Bank Sverige AB and Carnegie Investment Bank AB, given the exceptional circumstances and the fact that the institutions were assessed to be solvent and to have liquidity problems of a temporary nature. Due to the fragility of the financial markets during the autumn of 2008, these institutions were deemed to be systemically important. If either of them had failed, it could have undermined confidence in the Swedish financial sector at large. Both banks were eventually sold, and the liquidity support did not result in any losses for the Riksbank.

### **Kaupthing Bank Sverige AB**

During the early 2000s, the Icelandic financial sector expanded rapidly, spurred by an influx of cheap and readily available capital from foreign investors. As a result, the Icelandic banking sector swelled from 100 percent of GDP in 2004, to around 900 percent of GDP in 2008. When the crisis came in 2008 it hit Iceland hard. Facing high capital outflows, the three largest banks, Glitnir, Landsbanki, and Kaupthing Bank Hf, were subsequently put under public administration.

### *Kaupthing Bank Hf had both a subsidiary and a branch in Sweden*

Kaupthing Bank Hf had operations in 13 countries and was active in Sweden from 2000 to 2009. In Sweden, it operated through a Swedish subsidiary, Kaupthing Bank Sverige AB, as well as through a Swedish branch, Kaupthing Bank Hf Island. The subsidiary had a balance sheet of about SEK 20 billion. The Swedish branch ran an online savings account under the name "Kaupthing Edge", with 16,000 customers.

The subsidiary was a Swedish legal entity and thus regulated and supervised by the Swedish authorities, while the Swedish branch was under the supervision of the Icelandic

authorities. Since Iceland adhered to the EU directive on deposit insurance, the subsidiary's deposits were guaranteed by the Swedish deposit guarantee scheme. Iceland's deposit guarantee scheme covered the branch, but a topping-up agreement had been negotiated, whereby Sweden would cover the difference between the Icelandic and Swedish deposit guarantee schemes.<sup>16</sup>

*When granting ELA to the Swedish subsidiary, the Riksbank allowed the funds to also be used to pay depositors in the Swedish branch*

The market turbulence induced by the bankruptcy of Lehman Brothers led to a strained liquidity situation in the Kaupthing parent company (Kaupthing Bank Hf), as well as its Swedish subsidiary and branch. As the subsidiary was a Swedish legal entity, Seðlabanki Íslands (the Central Bank of Iceland) had no mandate to provide it with liquidity assistance.

The subsidiary thus requested temporary liquidity support from the Riksbank. The Riksbank and the Swedish FSA both made the assessment that the bank was solvent. On 7 October 2008, Seðlabanki Íslands provided liquidity assistance of EUR 500 million to the Icelandic parent company. The next day, the Riksbank decided to grant liquidity assistance of up to SEK 5 billion to the subsidiary, against very extensive collateral requirements and conditions. This was necessary to ensure that the Riksbank was not put in a precarious position in providing financial assistance against insufficient collateral in a situation where the parent company, subsidiary and branch were all in financial peril. Given the many parties involved, the whole operation generated a rather complicated chain of transactions.

The Riksbank based its decision to give ELA on an assessment that the subsidiary was suffering temporary liquidity problems, but that its solvency was not threatened. The Riksbank assessed that, although the subsidiary was a small bank, it was systemically important given the sensitivity of the financial markets at the time. The press release read:

*"The Icelandic bank sector has for some time been under great strain. The conditions in the Icelandic bank sector have recently made it difficult also for Kaupthing Bank Sverige AB to meet its payment obligations. In the situation that has arisen, there is an imminent risk that the bank may suffer liquidity problems. To safeguard financial stability in Sweden and ensure the smooth functioning of the financial markets, the Riksbank has therefore decided to grant liquidity assistance to Kaupthing Bank Sverige".*

The press release also stated that the subsidiary could use the funds to pay depositors and creditors of the Swedish subsidiary, as well as depositors with accounts in the Swedish branch. The public announcement seemed to have a calming effect and significantly reduced depositors' withdrawals from accounts in the branch, which had been mounting in the preceding days. However, problems in the parent company soon led to it stopping payments to the Swedish branch.

Since the Riksbank allowed for the subsidiary to use the Riksbank liquidity support to pay depositors and creditors of the Swedish branch, the subsidiary was subsequently able to do so when the parent company stopped payments to the branch. Since the Swedish FSA supervised the subsidiary, the Riksbank had a good understanding of its financial situation and was able to conduct a solvency assessment.

The Riksbank was able to avoid a direct exposure to the parent company given that it was the subsidiary, not the branch, which received the liquidity assistance from the Riksbank. However, there was an indirect exposure to the parent company, as the

<sup>16</sup> The Icelandic deposit guarantee scheme (DGS) covered EUR 20,887 per deposit holder at the time. The Swedish DGS covered amounts exceeding EUR 20,887 up to SEK 500,000. On 6 October 2008 the Swedish DGS was increased from SEK 250,000 to SEK 500,000. According to Insättningsgarantinämnden the branch had deposits of SEK 2,6 billion on 21 December 2007 of which SEK 66 million were covered by the Swedish DGS topping-up agreement.

subsidiary was paying the depositors in the branch. The Riksbank reduced this exposure by taking extensive collateral from the subsidiary.

During the handling of Kaupthing, the Riksbank had a dialogue with the Bank of England and De Nederlandsche Bank, as Kaupthing was also active in their markets.

#### *Ålandsbanken acquired the Swedish subsidiary and repaid the loan*

On 27 March 2009, Ålandsbanken acquired the Swedish subsidiary. The Riksbank's loan was repaid in full, and the corresponding collateral was returned. The loan generated a positive interest income for the Riksbank of SEK 61 million. Overall, the way the situation was managed limited the effects on Kaupthing's customers in Sweden. The subsidiary did not have to default on payments, and all depositors in the branch had their money repaid. Moreover, the confidence for the Swedish banking system was maintained.

#### **Carnegie Investment Bank AB**

The Swedish institution Carnegie Investment Bank AB (hereinafter referred to as "Carnegie") had operations in investment banking, asset management and private banking. Carnegie had a balance sheet of SEK 33 billion. Carnegie was part of the Carnegie Group as a wholly owned subsidiary of D. Carnegie & Co AB (hereinafter referred to as the "parent company"). In Sweden, Carnegie had around four thousand customers, and also had subsidiaries and branches in Denmark, Norway, Finland, Luxembourg, Switzerland, the UK and the US.

#### *Carnegie experienced financing problems when the crisis came to Sweden*

Going into the crisis, Carnegie had a rather vulnerable financing strategy, whereby it depended largely on short-term financing. The decision that essentially led to Carnegie's problems during the crisis was that it had extended a credit line to a Swedish financier, in return for collateral consisting largely of shares in the listed company Hexagon. That in turn made Carnegie dependent on the stock price development in Hexagon.

As the crisis unfolded, Hexagon's share price fell by 35 percent from August to September 2008. As the value of the underlying collateral decreased, Carnegie became non-compliant with the regulation on large exposures to a single client. According to the applicable rules, the bank had to report this breach to the Swedish FSA, leading to a supervisory investigation. At the time, the FSA also had other ongoing cases concerning Carnegie.<sup>17</sup>

The escalation of the financial crisis during the autumn of 2008 took a drastic toll on Carnegie's ability to secure financing. Carnegie had used the Hexagon shares they held as collateral to raise financing in the markets. When Hexagon's share price fell, Carnegie had to supply even more collateral. In this manner, Carnegie had made itself dependent on the development of Hexagon's share price and the situation quickly grew more serious.

#### *Carnegie applied for ELA from the Riksbank*

The liquidity strain soon became critical and Carnegie formally applied for liquidity assistance from the Riksbank. On 27 October, the Riksbank announced that it had granted ELA of SEK 1 billion to Carnegie. The loan was provided against collateral, to minimise the risk to the Riksbank.

Both the Riksbank and the FSA made the assessment that Carnegie was solvent. The Riksbank assessed that Carnegie was having temporary liquidity problems. As in the case of Kaupthing, given the sensitivity of the financial markets at the time, Carnegie was

<sup>17</sup> In September 2007 the FSA had issued a warning and a penalty fee for issues concerning internal governance and control which was still being monitored. Additionally, the FSA had found that one of Carnegie's subsidiaries – Carnegie Fond AB – had violated regulations by making Carnegie the asset manager of its mutual funds.

deemed systemically important, and providing liquidity assistance to Carnegie was seen as a way to reduce the risk of a serious disruption to the financial system.

When the Riksbank made the liquidity support publically known, Carnegie's share price fell by almost 55 percent in one day. Carnegie's stock market value had thus fallen from SEK 10 billion to SEK 1 billion in one year. On 28 October, the Riksbank granted an additional SEK 4 billion of liquidity assistance to Carnegie against collateral. The Riksbank had now approved a total of up to SEK 5 billion worth of liquidity assistance that Carnegie could draw on against collateral.

#### *The SNDO took over the loan from the Riksbank*

On 29 October 2008, the Government passed the Support to Credit Institutions Act (2008:814), which stipulated that state support could be given to a credit institution undergoing reconstruction, to prevent the risk of a major disruption to the financial system. The Government gave the SNDO the right to enter into a loan agreement with Carnegie. On 10 November, the Swedish FSA withdrew Carnegie's banking license.<sup>18</sup> The SNDO then took over the Carnegie loan from the Riksbank, and the associated collateral was transferred. The Riksbank's press release stated that, since the Swedish FSA had withdrawn Carnegie's license to conduct banking operations, it would be more appropriate, given the new bank support legislation, for the SNDO to take over the responsibility for the assistance to Carnegie. At that point, the Carnegie case was concluded for the Riksbank's part. The SNDO took over the shares posted as collateral for its loan and became owner of Carnegie, and with a new owner the FSA was able to reinstate Carnegie's banking license.

On 19 May 2009, it was announced that the SNDO had sold Carnegie to Altor Fund III and Bure Equity AB. Overall, the Carnegie loan generated a positive interest income for the Riksbank of SEK 5 million.

## Swap lines to other central banks

As a small open economy with a cross-border banking system dependent on wholesale funding, Sweden is affected by global developments. Financial stability in the region is therefore an important factor for ensuring financial stability in Sweden. The Nordic-Baltic countries are closely interlinked through trade and economic channels, and from an investor perspective adverse developments in one country can motivate a sell-off affecting the whole region, due to the perceived risk of contagion.

The crisis affected Iceland and the Baltic countries severely. At the time, two of the large Swedish banking groups had extensive lending in the Baltic countries, which posed a risk to the stability of the Swedish financial system through financial exposures.<sup>19</sup> To mitigate contagion to the Swedish financial system, the Riksbank entered into short-term funding agreements in the form of swap lines, in order to contribute towards safeguarding the macroeconomic and financial stability of Estonia, Iceland, and Latvia.

#### *Swap arrangements served to uphold stability in the region*

The legal foundation for a swap arrangement is provided by the Sveriges Riksbank Act, whereby lending to other central banks can be conducted for exchange rate policy purposes, which includes for monetary policy purposes as well as for the purpose of mitigating crises in the international payment system. A crisis in neighbouring countries would likely have repercussions on the Swedish economy and impede the Riksbank's ability to conduct monetary policy in an effective manner by hampering the monetary policy transmission mechanism.

<sup>18</sup> See Finansinspektionen 2008.

<sup>19</sup> In the second quarter of 2009, the Swedish banks had a 55 percent market share of total lending in Latvia, 82 percent in Estonia, and 63 percent in Lithuania.

### **Swap line with Seðlabanki Íslands (the Central Bank of Iceland)**

The Icelandic economy had expanded at a fast pace in the period preceding the crisis. In parallel with overheating in the domestic economy, the Icelandic banks had pursued a rapid international expansion – especially in the Nordic countries, the Netherlands and the United Kingdom. When the financial crisis escalated in 2008, international investors sold their Icelandic assets, which led to large capital outflows and currency depreciation.

The lower risk appetite adversely affected the Icelandic banks, as they depended on market financing to a high degree. Because of the large size of the banking system in relation to the Icelandic economy, investors increasingly questioned whether the Icelandic authorities had the financial capacity needed to handle a banking crisis.

#### *The Riksbank granted a swap line to Seðlabanki Íslands to uphold financial stability in the region*

As the problems in the Icelandic banking sector worsened in 2008, Seðlabanki Íslands approached the Riksbank to enquire about a possible swap agreement to supply Iceland with euros. The purpose of the swap was to strengthen confidence in the Icelandic economy and to calm markets with the assurance that financing was available.

The Riksbank assessed that a financial crisis in Iceland could spread and cause financial instability in the region. This in turn could have a negative effect on the real economy in Sweden and on the Swedish banks' ability to access funding.

On 16 May 2008, the Riksbank decided to grant a swap line of a maximum of EUR 500 million in exchange for Icelandic krónur. The central banks in Denmark and Norway also entered into swap agreements with Seðlabanki Íslands at the same time, and for the same amounts. The press releases were coordinated among the contributing countries and stated that during times of uncertainty and turbulence it is the responsibility of central banks to cooperate to reach overarching goals, and that the swap lines were intended to support Seðlabanki Íslands' role in maintaining macroeconomic and financial stability.

#### *Longer-term financing from the IMF and the Swedish Government replaced the short-term swap line*

On 19 November, the Board of the International Monetary Fund (IMF) granted Iceland a 3-year financing programme of USD 2.1 billion. The next day, the Riksbank extended the agreement with Seðlabanki Íslands, given that the situation in Iceland still threatened confidence in the financial markets in the region and thus also the Swedish economy. The Riksbank issued a press release, which read:

*“The fact that the IMF programme is now in place is an important precondition for being able to return the situation in Iceland to macroeconomic and financial stability. Our contribution will help stabilise the situation.”*

Once the IMF programme had been decided, the Swedish Government entered into a longer-term loan agreement with Iceland. When the swap expired in December 2009, there was no need to further extend it as Iceland's economy was on the path to recovery.

### **Swap line with Latvijas Banka (the Central Bank of Latvia)**

When the crisis hit Latvia, the country had an exchange rate peg against the euro. The crisis triggered outflows of short-term non-resident deposits, leading to a loss of reserves, and there was widespread speculation that the government would resort to devaluing the lat. The authorities realised that they would need the financial support of the IMF to put the economy back on track. While the authorities were negotiating the IMF programme, capital kept pouring out of the country. Foreign liquidity was urgently needed to boost the reserves of the central bank, and swap lines were necessary as bridge financing until the IMF financing arrived.

*The Riksbank granted a swap line to Latvijas Banka to uphold financial stability in the region*

In considering a swap with Latvijas Banka, the Riksbank weighed heavily on the risk that a financial crisis in Latvia could spread in the region. Specifically, the large market share of the Swedish banking groups in Latvia's lending market could hurt the Swedish banking system, and in turn financial stability and the Swedish economy at large. Financial stability in Latvia was therefore closely linked with stability in Sweden.

For the Riksbank, it was important to ensure that an agreement was tied to commitments by the authorities to address the inherent problems in the economy. This was done by waiting until Latvia had signed a Letter of Intent with the IMF stipulating the action necessary to be taken by the authorities to draw on the IMF financing. The actual IMF programme was signed two weeks later.

On 16 December 2008, the swap agreement was finalised whereby Latvijas Banka could borrow up to EUR 500 million from the Riksbank and Danmarks Nationalbank in exchange for Latvian lats. The Riksbank's share of the loan was EUR 375 million, and Danmarks Nationalbank provided EUR 125 million.

The agreement initially ran for 3 months but was extended twice, in April and September 2009. As Danmarks Nationalbank chose not to extend the agreement, the Riksbank agreed to raise its own share of the agreement to EUR 500 million in March 2009. The agreement expired on 22 March 2010. During the entire duration of the swap agreement, Latvia had an on-track IMF programme, meaning that the authorities fulfilled obligations under each quarterly IMF review.

**Swap line with Eesti Pank (the Central Bank of Estonia)**

During the tumultuous autumn of 2008, Estonia was also drawn into the crisis, and on 27 February 2009 the Riksbank entered into a swap agreement with Eesti Pank. Under the agreement, Eesti Pank could borrow up to SEK 10 billion against Estonian kroon. The swap agreement was a precautionary measure intended to improve Eesti Pank's ability to safeguard financial stability in Estonia.

*The Riksbank's swap line enabled Eesti Pank to provide liquidity under a currency board exchange rate regime*

The swap arrangement with Eesti Pank had a different character than the swap agreements with Iceland and Latvia. Rather than intending to support the local financial system and economy, the intent was to help Eesti Pank improve its ability to provide liquidity support to Swedish banks under the constraints of a currency board exchange rate regime.

The currency board was a fixed exchange rate regime, which meant that the amount of Estonian kroon in the system had to correspond to the amount of foreign exchange held in the currency board. The only way to create new Estonian kroon was thus to increase the amount of foreign exchange held correspondingly. This regime put a restriction on the amount of kroon that Eesti Pank could create.

As Swedish bank subsidiaries operating in Estonia were Estonian legal entities, it was the responsibility of the Estonian authorities to provide liquidity support. In a situation where the Swedish bank subsidiaries needed liquidity in Estonian kroon, Eesti Pank would have been limited in its ability to provide support due to the currency board arrangement. The Riksbank swap therefore served a precautionary role in the event that Swedish banks' subsidiaries in Estonia would need liquidity support. However, Eesti Pank never used the swap agreement, and it expired on 31 December 2009.

## 5. Lessons from the crisis have served to strengthen the Riksbank's crisis preparedness

By and large, the crisis management of the Riksbank and the other Swedish authorities during the global financial crisis can be seen as successful.<sup>20</sup> The measures taken served to lessen the impact of the crisis on the Swedish financial system, which continued to function without any major disruptions. The large-scale liquidity supply did pose risks to the Riksbank, but it ultimately paid off.

In managing the crisis, it was imperative for the Riksbank to be agile in taking decisions and deploying the crisis tools, supported by the relevant technical capabilities, legal remit, and practical knowledge. Transparency and communication, and close collaboration with other authorities in Sweden and abroad, also proved to be integral in managing the crisis. Since the crisis, the Riksbank has been able to reflect on these lessons and has worked to strengthen its internal crisis management capabilities.<sup>21</sup>

An overarching lesson is that every financial crisis comes with new challenges. Future crises will most likely take different shapes and come with new challenges in an evolving financial system. Consequently, continuous monitoring of the domestic financial system and its international dependencies remains a core task, as well as preparedness for new situations.

### *The need to be agile as an organisation*

At the onset of the crisis, the Riksbank had to quickly identify the problems in the financial sector and determine which measures were needed to limit the effects on Sweden. As explained in Chapter 2, the crisis that erupted after the Lehman Brothers bankruptcy in September 2008 was of a very different nature compared to the Swedish Banking crisis of the 1990s. To confront the new challenges of the global financial crisis, central banks could not rely on the established modes of crisis response. The Riksbank took an iterative approach in designing its crisis measures and continuously recalibrated them to yield the desired impact.

Importantly, the Riksbank had to deploy the measures sufficiently fast, and to an adequate extent, which required quick and forceful decision-making. Not implementing measures to the extent necessary could have aggravated the situation.

The need for rapid decision making and for implementing measures in a swift manner demanded a significantly higher degree of intensity in the cooperation among the Riksbank's departments, compared to normal times. During the height of the crisis, core staff across departments and the Executive Board met every morning and afternoon.

The close internal collaboration was crucial as different types of knowledge were needed in terms of analytical and operational expertise. Cooperation across policy areas was also important as the various crisis measures were mutually reinforcing. The dividing lines between monetary policy and financial stability policy are not rigid, and the measures could therefore not be conducted independently of one another.

### *Data central to assessing the banks' liquidity situation*

To be able to make the right decisions about providing crisis measures to the banking system, it was paramount to have access to the necessary data. The Riksbank's decision early on to collect extensive liquidity data from the banks on a daily basis was central to being able to correctly assess the situation. In providing extraordinary loans and granting

<sup>20</sup> See Bryant et al. 2012, Goodhart et al. 2010, and the Financial Crisis Committee 2013.

<sup>21</sup> For more information on lessons learned, see the articles in *Sveriges Riksbank Economic Review 2018:4*, listed in the bibliography.

emergency liquidity assistance the Riksbank largely relied on this data to monitor the market as well as the liquidity situation of individual institutions.

#### *Accessing foreign exchange for liquidity provisioning*

In terms of providing liquidity, the Swedish banks' high reliance on wholesale funding in foreign currency necessitated the Riksbank to increase its access to USD. In this regard, the Federal Reserve swap line was instrumental in enabling the Riksbank to meet the Swedish banks' USD liquidity needs. The fact that the crisis originated in the United States and spread globally was likely an important factor in the Federal Reserve's agreeing to enter into swap lines with other central banks. It was also in the interest of the United States to contribute to easing the strain on the USD funding market by facilitating foreign central banks' access to USD.

Access to swap lines cannot be taken for granted in the future, as they are made available entirely at the discretion of the lending central bank. The scale of a future crisis, and whether it is national or regional/global in nature, will most likely also affect the willingness of a lending central bank to provide access to a swap line. This underscores the importance of having an adequately large currency reserve.

#### *The importance of exit strategies*

In deploying the crisis measures, much of the Riksbank's focus was on how to practically implement them and the expected effects. A lesson going forward is, right from the start, to put sufficient thought into the different options of how to achieve a smooth exit from each crisis measure – and to be prepared to reconsider if the measure does not yield the intended effect.

#### *Transparency and communication central to maintaining confidence*

Financial stability is a matter of trust. Being a central bank, and one of the authorities responsible for financial stability in Sweden, it was imperative that the public and investors trusted that the Riksbank had the means to act, and would take the measures necessary to mitigate the effects of the crisis.

The Riksbank's transparency and communication during the crisis were likely a strong contributor to investors and the public maintaining confidence in the Swedish financial sector. At the very onset of the crisis the Riksbank made a public statement that it was prepared to provide the liquidity necessary to safeguard financial stability and ensure the smooth functioning of the financial markets in Sweden.

The Riksbank also held the view that publicly disclosing the extent of the problems would reduce the risk of speculation about the severity of the situation. Uncertainty about the gravity of a situation can exacerbate concerns more than if the actual extent of the problem is known. The Riksbank therefore decided early on to communicate everything about the crisis measures that did not compromise national security or corporate confidentiality.

When Kaupthing Bank Sverige AB and Carnegie Investment Bank AB received emergency liquidity assistance, it was important to the Riksbank that the banks themselves published information about the assistance. This served to calm the markets and strengthen confidence. During the crisis, even if there was nothing substantial to communicate, the Riksbank would share its assessment of the current situation to be fully transparent. That reduced uncertainty and built trust.

#### *Collaboration between the Swedish authorities was integral in containing the crisis*

The crisis also made clear how important it is for the different Swedish authorities to collaborate. The authorities concerned had daily meetings to share information, discuss the options and coordinate activities. The authorities also coordinated press releases to show unity and to calm the markets and the public. This cooperation among the

authorities served to build confidence in the Swedish financial system. Joint statements were made about the size of liquidity support that had been supplied at the onset of the crisis. One of the Riksbank's early press releases read:

*"Together with the actions taken by the Swedish National Debt Office, liquidity of more than SEK 500 billion is being supplied in different ways".*

Moreover, as outlined in Chapter 4, a number of important measures taken by other authorities complemented the Riksbank's crisis measures. For example, the "Government Support to Credit Institutions Act" enabled the SNDO to act as guarantor on part of a bank's debt. The Government also put forward a bill to increase the deposit guarantee, and set up a capital injection programme. These, together with other measures, served to maintain trust that the authorities were on top of the situation.

However, at the time, there was no institutional framework for handling failing banks, as Sweden did not have a law covering resolution. Since then, the SNDO has been designated resolution authority (in addition to its role as the guarantee authority for the deposit guarantee, investor protection, and preventive government support). A Financial Stability Council has also been established where representatives from the Ministry of Finance, the Swedish FSA, the SNDO, and the Riksbank meet regularly to discuss financial stability issues, the need for measures to prevent financial imbalances from building up and, in the event of a financial crisis, the need for crisis measures.

#### *International collaboration served to share knowledge and display unity*

International collaboration also proved key during the crisis. The Riksbank has been actively engaged in international and regional forums for a long time as a way to gain knowledge, learn best practices, and discuss topical central banking issues. Sweden joined the Bank for International Settlements (BIS) in 1930, and the IMF in 1951, and there is a long tradition of central bank cooperation within the Nordic-Baltic region. For the Riksbank, already having established relationships with these institutions proved instrumental during the crisis.

During the height of the crisis, cooperation among central banks served to show unity and calm markets. For example, press releases were coordinated among central banks to communicate reductions in policy rates, and to announce the provision of swap lines from the Federal Reserve. Another example is that many of the terms and conditions for auctions in US dollars were synchronised across countries.

The BIS, EU, European System of Central Banks (ESCB), European Systemic Risk Board (ESRB) and IMF also had key roles in providing advice and facilitating information sharing on crisis management matters. For example, the Riksbank largely relied on the IMF's country expertise when entering into regional swap agreements, as the IMF had the knowledge about which policy measures were necessary to regain market confidence.

#### *The interlinked financial systems in the Nordic-Baltic region made close collaboration among the countries crucial*

During the crisis, the Riksbank had close cooperation with the other central banks in the the Nordic-Baltic region. As the financial systems were closely interlinked, it was instrumental to have a continuous dialogue on crisis developments and measures. For example, the close and constructive cooperation among the Nordic-Baltic authorities was central in dealing with home-host banking issues.

An important lesson from the crisis was that more dialogue on financial stability issues was required to detect looming risks. The Nordic-Baltic Macroprudential Forum (NBMF) was created in 2010 for this purpose, bringing together central banks and supervisory authorities to discuss issues related to financial stability risks and macroprudential measures.

Furthermore, the Nordic and Baltic countries created the first regional stability group, the Nordic-Baltic Stability Group (NBSG), consisting of relevant ministries, financial

supervisory authorities, central banks, and since 2016, resolution authorities. The main purpose of the NBSG is to discuss issues related to crisis management and to conduct regular regional crisis simulation exercises.<sup>22</sup> To be agile in the event of a crisis, it is important to conduct regular crisis simulation exercises during normal times to keep the relevant skills updated among staff and to build institutional memory. Maintaining a high degree of internal knowledge of operational matters is imperative in designing efficient crisis measures.

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<sup>22</sup> The Nordic and Baltic financial stability authorities conducted a joint financial crisis simulation exercise in January 2019. The exercise involved around 300 people from 31 Nordic-Baltic authorities and relevant EU institutions. The simulation was probably the largest cross-border financial crisis exercise ever held.

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## Annex A. USD lending auctions

**Table 1. The Riksbank's extraordinary loans – USD lending auctions**  
USD

Auction date	Payment date	Maturity date	Currency	Maturity (days)	Volume offered (mn)	Volume allotted (mn)	Marginal interest rate (percent)
2008-10-01	2008-10-02	2008-10-30	USD	28	7 000	7 000	4.10
2008-10-15	2008-10-17	2009-01-09	USD	84	10 000	10 000	2.35
2008-10-22	2008-10-24	2009-01-16	USD	84	10 000	10 000	1.54
2008-10-28	2008-10-30	2008-11-27	USD	28	7 000	4 800	1.41
2008-11-26	2008-11-28	2009-02-20	USD	84	5 000	5 000	1.40
2009-01-07	2009-01-09	2009-04-03	USD	84	10 000	10 000	1.06
2009-01-14	2009-01-16	2009-02-13	USD	28	10 000	2 000	0.65
2009-02-11	2009-02-13	2009-05-08	USD	84	10 000	10 000	0.77
2009-02-18	2009-02-20	2009-05-15	USD	84	10 000	10 000	0.81
2009-04-01	2009-04-03	2009-06-26	USD	84	10 000	10 000	0.80
2009-05-06	2009-05-08	2009-07-31	USD	84	10 000	10 000	0.73
2009-05-13	2009-05-15	2009-08-11	USD	88	10 000	3 500	0.70
2009-06-24	2009-06-26	2009-09-18	USD	84	10 000	4 300	0.74
2009-07-29	2009-07-31	2009-10-23	USD	84	10 000	2 700	0.70
2009-08-07	2009-08-11	2009-11-03	USD	84	10 000	1 000	0.69
2009-09-15	2009-09-18	2009-12-11	USD	84	5 000	-	
2009-10-20	2009-10-23	2010-01-15	USD	84	5 000	-	

Source: Sveriges Riksbank

## Annex B. SEK lending auctions

**Table 2. The Riksbank's extraordinary loans – SEK lending auctions**  
SEK

Auction date	Payment date	Maturity date	Currency	Maturity (days)	Volume offered (mn)	Volume allotted (mn)	Marginal interest rate (percent)
2008-10-06	2008-10-08	2009-01-08	SEK	92	100 000	100 000	5.40
2008-10-08	2008-10-10	2009-04-14	SEK	186	100 000	66 500	4.65
2008-10-16	2008-10-20	2009-01-20	SEK	92	80 000	13 500	4.50
2008-10-27	2008-10-29	2009-01-28	SEK	91	80 000	3 500	4.00
2008-11-05	2008-11-11	2009-02-10	SEK-F	91	40 000	4 500	4.15
2008-11-10	2008-11-12	2009-02-11	SEK	91	60 000	15 000	4.00
2008-11-19	2008-11-25	2009-02-24	SEK-F	91	40 000	1 000	4.15
2008-11-24	2008-11-26	2009-02-25	SEK	91	40 000	6 000	4.00
2008-12-05	2008-12-11	2009-03-10	SEK-F	89	40 000	1 000	2.40
2008-12-08	2008-12-10	2009-03-11	SEK	91	40 000	34 000	2.25
2008-12-17	2008-12-23	2009-03-24	SEK-F	91	40 000	1 300	2.40
2008-12-19	2008-12-23	2009-03-24	SEK	91	60 000	18 500	2.25
2009-01-05	2009-01-08	2009-04-08	SEK	90	120 000	56 500	2.25
2009-01-16	2009-01-20	2009-04-21	SEK	91	40 000	-	
2009-01-21	2009-01-27	2009-04-21	SEK-F	84	40 000	-	
2009-01-26	2009-01-28	2009-04-27	SEK	91	40 000	-	
2009-01-30	2009-02-05	2009-05-05	SEK-F	89	40 000	-	
2009-02-09	2009-02-11	2009-05-13	SEK	91	40 000	-	
2009-02-20	2009-02-26	2009-08-11	SEK-F	166	25 000	415	repo + 0.20
2009-02-20	2009-02-26	2009-05-19	SEK-F	82	25 000	-	
2009-02-23	2009-02-25	2009-08-12	SEK	168	25 000	15 000	repo + 0.15
2009-02-23	2009-02-25	2009-05-20	SEK	84	25 000	1 000	repo + 0.15
2009-03-04	2009-03-10	2009-06-02	SEK-F	84	25 000	100	repo + 0.20
2009-03-04	2009-03-10	2010-02-09	SEK-F	336	25 000	-	repo + 0.20
2009-03-09	2009-03-11	2009-06-03	SEK	84	25 000	22 000	repo + 0.15
2009-03-18	2009-03-24	2009-09-08	SEK-F	168	25 000	400	repo + 0.20
2009-03-18	2009-03-24	2009-06-16	SEK-F	84	25 000	-	
2009-03-20	2009-03-24	2009-06-17	SEK	85	40 000	18 000	repo + 0.15
2009-03-20	2009-03-24	2009-09-09	SEK	169	40 000	20 000	repo + 0.15
2009-04-06	2009-04-08	2009-07-01	SEK	84	80 000	34 500	repo + 0.15
2009-04-07	2009-04-14	2009-10-07	SEK	176	80 000	33 000	repo + 0.15
2009-04-15	2009-04-21	2009-07-14	SEK-F	84	25 000	-	repo + 0.20
2009-04-15	2009-04-21	2009-10-06	SEK-F	168	25 000	-	repo + 0.20
2009-04-20	2009-04-22	2009-07-15	SEK	84	25 000	-	
2009-04-20	2009-04-22	2009-10-07	SEK	168	25 000	12 000	repo + 0.15
2009-04-27	2009-05-05	2010-04-06	SEK-F	336	25 000	-	
2009-04-27	2009-05-05	2009-07-28	SEK-F	84	25 000	-	

Auction date	Payment date	Maturity date	Currency	Maturity (days)	Volume offered (mn)	Volume allotted (mn)	Marginal interest rate (percent)
2009-05-04	2009-05-06	2009-06-29	SEK	84	25 000	-	
2009-05-13	2009-05-19	2009-08-11	SEK-F	84	25 000	-	
2009-05-13	2009-05-19	2009-11-03	SEK-F	168	25 000	-	
2009-05-18	2009-05-20	2009-08-12	SEK	84	25 000	18 000	repo + 0.15
2009-05-18	2009-05-20	2009-11-04	SEK	168	25 000	10 000	repo + 0.15
2009-05-27	2009-06-02	2009-08-25	SEK-F	84	25 000	-	
2009-05-27	2009-06-02	2010-05-04	SEK-F	336	25 000	-	
2009-06-01	2009-06-03	2009-08-26	SEK	84	35 000	-	repo + 0.15
2009-06-01	2009-06-03	2010-05-05	SEK	336	35 000	25 000	repo + 0.15
2009-06-10	2009-06-16	2009-09-08	SEK-F	84	25 000	-	
2009-06-10	2009-06-16	2009-12-01	SEK-F	168	25 000	-	
2009-06-15	2009-06-17	2009-09-09	SEK	84	40 000	13 500	repo + 0.15
2009-06-15	2009-06-17	2009-12-02	SEK	168	40 000	6 500	repo + 0.15
2009-06-24	2009-06-30	2009-09-22	SEK-F	84	25 000	-	
2009-06-24	2009-06-30	2010-06-01	SEK-F	336	25 000	-	
2009-06-29	2009-07-01	2009-09-23	SEK	84	80 000	45 000	repo + 0.15
2009-06-29	2009-07-01	2010-06-02	SEK	336	80 000	5 000	repo + 0.15
2009-07-13	2009-07-15	2010-06-30	SEK	350	100 000	100 000	0.45
2009-07-13	2009-07-15	2009-10-07	SEK	84	25 000	2 000	repo + 0.16
2009-07-13	2009-07-15	2009-12-30	SEK	168	25 000	-	
2009-07-27	2009-07-29	2009-10-21	SEK	84	25 000	10 000	repo + 0.15
2009-07-27	2009-07-29	2010-06-30	SEK	336	25 000	11 000	repo + 0.15
2009-08-05	2009-08-11	2009-11-03	SEK-F	84	25 000	-	
2009-08-05	2009-08-11	2010-01-26	SEK-F	168	25 000	-	
2009-08-10	2009-08-12	2009-11-04	SEK	84	25 000	1 000	repo + 0.15
2009-08-10	2009-08-12	2010-01-27	SEK	168	25 000	5 000	repo + 0.15
2009-08-24	2009-08-26	2009-11-18	SEK	84	25 000	-	
2009-08-24	2009-08-26	2010-07-28	SEK	336	25 000	7 000	repo + 0.15
2009-09-02	2009-09-08	2009-12-01	SEK-F	84	25 000	-	
2009-09-02	2009-09-08	2010-02-23	SEK-F	168	25 000	-	
2009-09-07	2009-09-09	2009-12-02	SEK	84	40 000	-	repo + 0.15
2009-09-07	2009-09-09	2009-02-24	SEK	168	40 000	-	repo + 0.15
2009-09-14	2009-09-16	2010-08-25	SEK	343	100 000	100 000	0.43
2009-09-21	2009-09-23	2009-12-16	SEK	84	40 000	5 000	repo + 0.15
2009-09-21	2009-09-23	2010-08-25	SEK	336	40 000	5 000	repo + 0.15
2009-10-05	2009-10-07	2009-12-30	SEK	84	40 000	-	repo + 0.15
2009-10-05	2009-10-07	2010-03-24	SEK	168	40 000	5 000	repo + 0.15
2009-10-19	2009-10-21	2010-09-22	SEK	336	25 000	5 500	repo + 0.15
2009-11-02	2009-11-04	2010-10-06	SEK	336	100 000	95 300	0.40
2009-11-02	2009-11-04	2010-01-27	SEK	84	25 000	-	
2009-11-02	2009-11-04	2010-04-21	SEK	186	25 000	-	

Auction date	Payment date	Maturity date	Currency	Maturity (days)	Volume offered (mn)	Volume allotted (mn)	Marginal interest rate (percent)
2009-11-16	2009-11-18	2010-02-10	SEK	84	25 000	-	repo + 0.25
2009-11-16	2009-11-18	2010-10-20	SEK	336	25 000	-	repo + 0.30
2009-11-30	2009-12-02	2010-02-24	SEK	84	25 000	-	repo + 0.25
2009-11-30	2009-12-02	2010-05-19	SEK	168	25 000	-	repo + 0.25
2009-12-14	2009-12-16	2010-03-10	SEK	84	25 000	-	repo + 0.25
2009-12-14	2009-12-16	2010-11-17	SEK	336	25 000	5 000	repo + 0.30
2009-12-28	2009-12-30	2010-03-24	SEK	84	25 000	-	repo + 0.25
2009-12-28	2009-12-30	2010-06-16	SEK	168	25 000	-	repo + 0.25
2010-01-11	2010-01-13	2010-04-07	SEK	84	25 000	-	repo + 0.25
2010-01-11	2010-01-13	2010-12-15	SEK	336	25 000	5 500	repo + 0.30
2010-02-08	2010-02-10	2010-05-05	SEK	84	25 000	-	repo + 0.25
2010-02-08	2010-02-10	2011-12-01	SEK	336	25 000	500	repo + 0.30
2010-02-22	2010-02-24	2010-05-19	SEK	84	25 000	-	repo + 0.30
2010-02-22	2010-02-24	2010-08-11	SEK	168	25 000	-	repo + 0.35
2010-03-08	2010-03-10	2010-06-02	SEK	84	25 000	-	repo + 0.30
2010-03-22	2010-03-24	2010-06-16	SEK	84	25 000	-	repo + 0.30
2010-03-22	2010-03-24	2010-09-08	SEK	168	25 000	-	repo + 0.35
2010-04-01	2010-04-07	2010-06-30	SEK	84	25 000	-	repo + 0.30
2010-04-19	2010-04-21	2010-07-14	SEK	84	25 000	-	repo + 0.30
2010-04-19	2010-04-21	2010-10-06	SEK	168	25 000	-	repo + 0.35
2010-05-03	2010-05-05	2010-07-28	SEK	84	25 000	-	repo + 0.30
2010-05-31	2010-06-02	2010-06-30	SEK	28	25 000	-	repo + 0.30
2010-06-28	2010-06-30	2010-07-28	SEK	28	50 000	20 000	repo + 0.30
2010-07-26	2010-07-28	2010-08-25	SEK	28	25 000	5 000	repo + 0.50
2010-08-23	2010-08-25	2010-09-22	SEK	28	50 000	-	repo + 0.50
2010-09-20	2010-09-22	2010-10-20	SEK	28	50 000	-	repo + 0.50
2010-10-04	2010-10-06	2010-11-03	SEK	28	50 000	-	repo + 0.50

Note: SEK-F denotes SEK loans against commercial paper.

Source: Sveriges Riksbank

## Annex C. Press releases

**Table 3. Selected Riksbank press releases 2008-2010**

Date	Press release
2008-09-18	Measures to facilitate market functioning
2008-09-19	Some reflections on the current situation
2008-09-22	Changed collateral requirements for credit in RIX
2008-09-24	Central Banks Announce Swap Facilities with U.S. Federal Reserve
2008-09-24	Financial turbulence, monetary policy and inflation
2008-09-29	Riksbank announces new swap facility in US dollars
2008-10-02	Riksbank lends SEK 60 billion over three months
2008-10-02	Monetary policy and financial stability - the Riksbank's two main tasks
2008-10-06	Increased loans and longer maturity
2008-10-08	Riksbank grants liquidity assistance to Kaupthing Bank Sverige AB
2008-10-08	Changed collateral requirement for credit in RIX
2008-10-08	Repo rate cut to 4.25 per cent
2008-10-10	Riksbank issues Riksbank Certificates
2008-10-13	New loans in SEK and USD
2008-10-20	New dollar loans
2008-10-22	The Riksbank offers SEK loans on 27 October
2008-10-23	Repo rate cut to 3.75 per cent
2008-10-24	Programme for SEK loans against collateral
2008-10-24	The Riksbank to offer USD loans on 28 October
2008-10-27	Liquidity assistance to Carnegie Investment Bank
2008-10-28	Extended liquidity assistance to Carnegie Investment Bank
2008-10-29	The Riksbank assists corporate funding
2008-11-06	The Riksbank offers SEK loans on 10 November
2008-11-10	Swedish National Debt Office takes over loan to Carnegie
2008-11-12	On 19 November the Riksbank offers new SEK loans against commercial paper
2008-11-13	Forceful measures to counteract the effects of the financial crisis
2008-11-20	Riksbank extends swap agreement with Seðlabanki Íslands
2008-11-20	The Riksbank offers SEK loans on 24 November
2008-11-24	The Riksbank to offer USD loans on 26 November
2008-11-25	On 3 December the Riksbank offers new SEK loans against commercial paper
2008-11-26	Measures necessary for financial stability
2008-11-28	Measures for financial stability and monetary policy working together
2008-12-02	Auction of SEK loans against commercial paper postponed
2008-12-04	The Riksbank offers SEK loans on 8 December
2008-12-04	Repo rate cut to 2 per cent
2008-12-10	On 17 December the Riksbank offers new SEK loans against commercial paper
2008-12-16	The Riksbank grants loan to Latvia's central bank
2008-12-17	The Riksbank offers SEK loans on 19 December
2008-12-19	Riksbank will continue to offer USD loans next year

2008-12-30	The Riksbank offers SEK loans on 5 January
2009-01-09	On 21 January the Riksbank offers new SEK loans against commercial paper
2009-01-14	The Riksbank offers SEK loans on 16 January
2009-01-22	The Riksbank offers SEK loans on 26 January
2009-01-23	On 30 January the Riksbank offers new SEK loans against commercial paper
2009-02-03	New dollar auctions and extended swap line with the Federal Reserve
2009-02-05	The Riksbank offers SEK loans on 9 February
2009-02-10	The Riksbank to offer USD loans on 11 February
2009-02-11	Repo rate cut to 1 per cent
2009-02-13	Long SEK loans at variable interest rate
2009-02-16	The Riksbank to offer USD loans on 18 February
2009-02-19	The Riksbank will offer SEK loans, maturity 84 days, on 23 February
2009-02-19	The Riksbank will offer SEK loans maturity 168 days on 23 February
2009-02-20	Programme for long SEK loans at variable interest rate
2009-02-26	On 4 March the Riksbank offers new SEK loans, maturity 336 days, against commercial paper
2009-02-26	On 4 March the Riksbank offers new SEK loans, maturity 84 days, against commercial paper
2009-02-27	Riksbank enters into a precautionary arrangement with the Estonian central bank
2009-03-05	On 9 March the Riksbank offers new SEK loans
2009-03-11	On 18 March the Riksbank offers new SEK loans against commercial paper (168 days)
2009-03-11	On 18 March the Riksbank offers new SEK loans against commercial paper (84 days)
2009-03-18	On 20 March the Riksbank offers new SEK loans (6 months)
2009-03-18	On 20 March the Riksbank offers new SEK loans (3 months)
2009-03-18	Updated programme for long SEK loans at variable interest rate
2009-03-25	On 1 April the Riksbank offers new SEK loans, maturity 336 days, against commercial paper
2009-03-25	On 1 April the Riksbank offers new SEK loans, maturity 84 days, against commercial paper
2009-03-30	The Riksbank to offer USD loans on 1 April
2009-04-02	On 6 April the Riksbank offers new SEK loans (3 months)
2009-04-03	Riksbank extends eligible counterparties
2009-04-06	On 15 April the Riksbank offers new SEK loans against commercial paper (168 days)
2009-04-06	On 15 April the Riksbank offers new SEK loans against commercial paper (84 days)
2009-04-06	On 8 April the Riksbank offers new SEK loans (6 months)
2009-04-16	On 20 April the Riksbank offers new SEK loans (3 months)
2009-04-16	On 20 April the Riksbank offers new SEK loans (6 months)
2009-04-20	On 27 April the Riksbank offers new SEK loans against commercial paper (336 days)
2009-04-20	On 27 April the Riksbank offers new SEK loans against commercial paper (84 days)
2009-04-21	Repo rate cut to 0.5 per cent
2009-04-28	The Riksbank to offer new USD loans
2009-04-29	On 4 May the Riksbank offers new SEK loans (3 months)
2009-05-04	The Riksbank to offer USD loans on 6 May
2009-05-06	On 13 May the Riksbank offers new SEK loans against commercial paper (84 days)
2009-05-06	On 13 May the Riksbank offers new SEK loans against commercial paper (168 days)
2009-05-07	Riksbank offers SEK loans with 12-month maturity
2009-05-12	The Riksbank to offer USD loans on 13 May

2009-05-14	On 18 May the Riksbank offers new SEK loans (6 months)
2009-05-14	On 18 May the Riksbank offers new SEK loans (3 months)
2009-05-19	On 27 May the Riksbank offers new SEK loans against commercial paper (84 days)
2009-05-19	On 27 May the Riksbank offers new SEK loans against commercial paper (336 days)
2009-05-27	The foreign currency reserve to be strengthened
2009-05-28	On 1 June the Riksbank offers a new SEK loan (12 months)
2009-05-28	On 1 June the Riksbank offers a new SEK loan (3 months)
2009-06-03	On 10 June the Riksbank offers new SEK loans against commercial paper (168 days)
2009-06-03	On 10 June the Riksbank offers new SEK loans against commercial paper (84 days)
2009-06-10	Riksbank borrows euro from the ECB
2009-06-11	On 15 June the Riksbank offers new SEK loans (3 and 6 months)
2009-06-16	On 24 June the Riksbank offers new SEK loans against commercial paper (84 days)
2009-06-16	On 24 June the Riksbank offers new SEK loans against commercial paper (336 days)
2009-06-22	The Riksbank to offer USD loans on 24 June
2009-06-25	Swap line with Federal Reserve extended
2009-06-25	On 29 June the Riksbank offers new SEK loans (3 and 12 months)
2009-07-02	Programme for long SEK loans at variable interest rate
2009-07-02	Riksbank offers loans at fixed interest rate
2009-07-02	Repo rate cut to 0.25 per cent
2009-07-06	The Riksbank to offer new USD loans
2009-07-09	On 13 July the Riksbank offers loans at fixed interest rate
2009-07-09	On 13 July the Riksbank offers new SEK loans (3 and 6 months)
2009-07-16	The Governor of the Riksbank comments on the economic situation
2009-07-23	On 27 July the Riksbank offers new SEK loans (3 and 12 months)
2009-07-27	The Riksbank to offer USD loans on 29 July
2009-07-29	On 5 August the Riksbank offers new SEK loans against commercial paper (84 and 168 days)
2009-08-05	The Riksbank to offer USD loans on 7 August
2009-08-06	On 10 August the Riksbank offers new SEK loans (3 and 6 months)
2009-08-20	On 24 August the Riksbank offers new SEK loans (3 and 12 months)
2009-08-26	On 2 September the Riksbank offers new SEK loans against commercial paper (84 and 168 days)
2009-09-03	On 7 September the Riksbank offers new SEK loans (3 and 6 months)
2009-09-03	Riksbank offers new fixed-rate loans
2009-09-03	Repo rate held unchanged at 0.25 per cent
2009-09-10	On 14 September the Riksbank offers loans at fixed interest rate
2009-09-11	The Riksbank to offer USD loans on 15 September
2009-09-17	On 21 September the Riksbank offers new SEK loans (3 and 12 months)
2009-10-01	On 5 October the Riksbank offers new SEK loans (3 and 6 months)
2009-10-15	The Riksbank to offer USD loans on 20 October
2009-10-15	On 19 October the Riksbank offers new SEK loans (3 and 12 months)
2009-10-22	Repo rate held unchanged at 0.25 per cent
2009-10-22	Riksbank offers new fixed-interest rate loans
2009-10-29	On 2 November the Riksbank offers loans at fixed interest rate
2009-10-29	On 2 November the Riksbank offers new SEK loans (3 and 6 months)

2009-11-05	Riksbank continues to offer variable-interest loans
2009-11-12	On 16 November the Riksbank offers new SEK loans (3 and 12 months)
2009-11-19	Lending in US dollars to be discontinued
2009-11-26	On 30 November the Riksbank offers new SEK loans (3 and 6 months)
2009-12-10	On 14 December the Riksbank offers new SEK loans (3 and 12 months)
2009-12-16	Repo rate held unchanged at 0.25 per cent
2009-12-22	On 28 December the Riksbank offers new SEK loans (3 and 6 months)
2010-01-07	On 11 January the Riksbank offers new SEK loans (3 and 12 months)
2010-01-21	On 25 January the Riksbank offers new SEK loans (3 and 6 months)
2010-01-27	Swap line with the Federal Reserve expires
2010-02-04	The Riksbank will cease to offer 12-month loans but continue to offer loans at shorter maturities
2010-02-04	On 8 February the Riksbank offers new SEK loans (3 and 12 months)
2010-02-11	Repo rate left unchanged at 0.25 per cent
2010-02-15	Coherent regulatory framework and clear division of roles between authorities
2010-02-18	On 22 February the Riksbank offers new SEK loans (3 and 6 months)
2010-03-04	On 8 March the Riksbank offers new SEK loans (3 months)
2010-03-18	On 22 March the Riksbank offers new SEK loans (3 and 6 months)
2010-03-30	On 1 April the Riksbank offers new SEK loans (3 months)
2010-04-15	On 19 April the Riksbank offers new SEK loans (3 and 6 months)
2010-04-20	The Riksbank will cease to offer loans at maturities of three and six months, but will replace these with loans at a maturity of 28 days
2010-04-20	Repo rate held unchanged at 0.25 per cent
2010-04-29	On 3 May the Riksbank offers a new SEK loans (3 months)
2010-05-26	Riksbank Certificates with right of resale and longer maturity
2010-05-27	On 31 May the Riksbank offers a new SEK loan (1 month)
2010-06-21	On 28 June the Riksbank offers a new SEK loan (28 days)
2010-07-01	Repo rate raised to 0.5 per cent
2010-07-16	The Riksbank is to increase the price of 28-day loans
2010-07-19	On 26 July the Riksbank offers a new SEK loans (28 days)
2010-08-16	On 23 August the Riksbank offers a new SEK loans (28 days)
2010-09-02	Repo rate raised by 0.25 percentage points to 0.75 per cent
2010-09-16	On 20 September the Riksbank offers a new SEK loan (28 days)
2010-09-27	On 4 October the Riksbank offers a new SEK loan (28 days)
2010-10-26	Repo rate raised by 0.25 percentage points to 1.0 per cent
2010-12-15	Repo rate raised by 0.25 percentage points to 1.25 per cent

Source: Sveriges Riksbank



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