The Riksbank and Financial Stability

2010

S V E R I G E S   R I K S B A N K

Contents

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The Riksbank's role and tasks

Sveriges Riksbank is Sweden's central bank and a public authority under the Riksdag, the Swedish parliament. The Riksdag has delegated the responsibility for monetary policy to the Riksbank and stipulated in legislation that the objective of the Riksbank's activities is to maintain price stability.[1] According to the Sveriges Riksbank Act, the Riksbank is also to promote a safe and efficient payment mechanism.[2] This brochure describes the Riksbank's work with the latter task.

The Sveriges Riksbank Act does not describe in detail what is meant by promoting a safe and efficient payment mechanism. However, it is clear that the Riksbank has a responsibility for the supply of cash[3] and for supplying a central payment system.[4] A safe and efficient payment mechanism requires a stable financial system so that payments and the supply of capital function smoothly. The Riksbank, like other central banks, must also be able to manage financial crises and other serious disruptions in the financial system to ensure the payment mechanism is safe and efficient. In this respect, the Riksbank plays a special role as Sweden's central bank, because it can quickly supply money to the financial system if the need arises.[5]

A stable financial system is a necessary condition for the Riksbank to be able to conduct an effective monetary policy. This is because the financial markets and their functioning affect the impact that monetary policy has through the interest rates that households and companies pay on their loans. Moreover, the economic consequences of a financial crisis have a direct impact on price stability, growth and employment.

Promoting a safe and efficient payment mechanism thus has a fairly broad meaning. In practice we have a responsibility to promote stability in the financial system. But unlike the monetary policy task, the Riksbank is not alone in having responsibility for safeguarding financial stability. The Riksbank shares this responsibility with Finansinspektionen (the Swedish Financial Supervisory Authority), the Swedish National Debt Office and the Government, through the Ministry of Finance. All of these authorities have different roles in promoting financial stability.

1. Chapter 9, Section 13 of the Instrument of Government, Chapter 1, Section 2 of the Sveriges Riksbank Act (1988:1385). The document "Monetary Policy in Sweden" describes the Riksbank's monetary policy objective and strategies. This document is available on the Riksbank's website (www.riksbank.se).
2. Chapter 1, Section 2, Sveriges Riksbank Act.
3. Chapter 9, Section 14 of the Instrument of Government, Chapter 5, Section 3 of the Sveriges Riksbank Act.
4. Chapter 6, Section 7 of the Sveriges Riksbank Act.
5. This role is usually referred to as lender of last resort.

Sweden's EU membership means that the financial sector in Sweden is covered by the regulatory framework introduced in the EU, and is thus affected by changes in this regulatory framework. Moreover, the financial integration creates a need for better coordination with authorities in other countries with regard to the supervision and oversight of financial activities.

What does the task entail in practice?

The Riksbank's practical work on promoting financial stability consists of several different tasks, namely:

- issuing banknotes and coins,
- ensuring that there is a central payment system – which banks and other agents can use to make payments,
- gathering, compiling and distributing information on the financial system,
- regularly analysing and supervising developments in the financial system and the economy as a whole,
- preventing threats to financial stability by informing of, and warning against, risks that are building up,
- affecting the financial regulatory framework so that it contributes to stability and efficiency,
- managing a financial crisis if one should arise.

These different tasks are all connected. Banknotes and coins are obviously important to the ability to make payments. But in a modern economy a large share of payments are made by various types of card and by transferring money between bank accounts. This means that the banks must be able to pay one another. The Riksbank supplies a system – known as RIX – which the banks can use for their own payments and for the payments they make on behalf of their customers. The Riksbank also offers overnight credit in this system to increase its efficiency.[6] RIX also contributes to financial stability, as it reduces the risks the users take when making payments.

This document focuses in particular on the tasks stemming from the Riksbank's work on preventing and managing financial crises. It begins with a description of what the Riksbank means by financial stability, of the fundamental functions and qualities of the financial system, and of the requirements for regulations that set standards. This is followed by a description of the Riksbank's crisis prevention work and its crisis management work, the contents of this work and its practical application. The document concludes with a forward-looking section on the allocation of responsibility and working methods in the field of financial stability. These questions need further discussion and investigation in the wake of the recent financial crisis.

6. Chapter 6, Section 7, Sveriges Riksbank Act.

What is financial stability?

There is no simple measure of financial stability, and it is not easy to give a brief and precise definition of the concept of financial stability.[7] However, financial stability essentially involves the extent to which the financial system can carry out its tasks.

The Riksbank has chosen to define financial stability as meaning that the financial system can maintain its basic functions and also has resilience to disruptions that threaten these functions.

The term *financial system* refers not only to banks, insurance companies and other financial agents, but also to financial markets and the financial infrastructure of technical systems, regulations and routines, that is required to make payments and exchange securities. The system also includes the financial regulatory framework in the form of legislation, regulation and other standards.

The *basic functions* of the financial system are mediating payments, converting savings into funding, and managing risk. These are described in more detail later on in this section. When we say that the system must *maintain its basic functions*, we mean that any disruptions should not lead to a deterioration in the functioning of the system that might involve large costs for society. This could involve, for instance, banks not being able to make payments to one another. Another example is a credit crunch, where access to credit is limited, for instance because the banks are unable to fund their lending.

The definition of resilience varies with regard to the different parts of the financial system. Moreover, the definition of *resilience to disruptions* that threaten the functioning of the system is a question of judgement that has many dimensions. This can involve, for instance, how much capital there is in the banks, and how good their liquidity is, and how vulnerable the financial payment infrastructure is. Later in the document we describe how the Riksbank assesses the resilience of the system in practice. A *disruption* can be, for instance, that the economy, or some part of it, suddenly weakens more than expected, or that a large bank suffers losses that threaten its survival.

7. For an account of different ways of defining this concept, see for instance Garry J. Schinasi, Defining Financial Stability, IMF Working Paper WP/04/187, 2004.

The basic functions of the financial system

The Riksbank has chosen to base its definition of financial stability on the functions supplied by the financial system. It is thus important what these functions are, how they are supplied and why they are important to the economy. They primarily concern the mediation of payments, converting savings into funding and managing risk.

Mediation of payments means that the financial system helps households and companies when they need to pay for goods or services. If wages are not paid on time and people are unable to pay their bills, this could soon result in chaos in the economy. In Sweden it is mainly the banks that mediate various types of payment service and ensure that payments can be made. In addition to the banks, the technical systems used to transfer the payments are essential in ensuring that the mediation of payments functions. There are technical systems for securities transactions, where both the payment and the security change owner, which manage each stage in the transaction from a customer presenting a buy or sell order to their bank and until the deal is complete.

Converting savings into funding means that the financial system takes care of households' and companies' savings and contributes to funding consumption and investment in, for instance, homes and production capital. This supply of capital includes all forms of funding, but one important part is made up of various types of credit. Households and companies can save by depositing money with banks or by buying securities on a market. Households and companies that instead want to borrow can do so by taking out a loan from a bank. Larger companies usually also have the possibility of borrowing by issuing debt securities, what is known as market funding.

When the banks lend money, they convert short-term funding into long-term lending. This means that the banks' funding, the customers' deposits and the banks' market funding must be repaid on demand, or has a short time to maturity, while their lending for a longer term. This maturity transformation, as it is known, is a very important service, as it gives households and companies the possibility to save at short fixed periods, so that they can use their deposits to make payments, at the same time as they can borrow for a longer period, for instance, when buying a home or investing in a new factory.

The transformation of savings into funding and of short-term funding into long-term lending is thus extremely important to the economy. Households and companies may need credit to bridge over gaps between income and expenditure in the short term. A shortage of more long-term credit could force companies to refrain from investment and make it very difficult for some households to purchase homes.

Management of risk means that households and companies, in particular financial companies, such as banks, have the opportunity to manage their risk by diversifying risk and dividing or redistributing risks to the agents interested in taking on risk in return for compensation. Risk management has become increasingly important as the financial markets have developed. Companies and banks that obtain funding on international securities markets can, for instance, insure themselves against interest rate risk and currency risk, that is, the risks caused by changes in interest rate levels and exchange rates, through the financial markets. For example, a pension fund manager investing in bonds may wish to reduce the risk of a decline in value by selling the interest rate risk on the market. At the same time, the fund manager may want to increase the return on the investment by buying, for instance, the risk that the Swedish krona will appreciate. If risk management in the financial markets does not function, many deals may be obstructed and perhaps will not go through at all.

The financial system and systemic risk

The three fundamental functions of the financial system – mediating payments, converting savings into funding and managing risk – are of central importance in ensuring that the economy functions and grows. Financial stability is quite simply a necessary condition for sustainable economic growth. At the same time, the financial system is sensitive. The sensitivity is due to central parts of the financial system, such as banks and financial markets, having built-in vulnerabilities. Moreover, the different parts of the system are closely linked to one another. This means that problems arising in one part of the system can quickly spread to other parts and threaten financial stability. The combination of built-in vulnerability and interconnection means that the financial system is to a large degree susceptible to systemic risk.

The financial system is sensitive

Banks are vulnerable as they convert short-term funding into long-term lending, which creates an imbalance between illiquid and long-term assets and short-term liabilities. As long as the general public and the market have confidence in a bank, this imbalance is not a problem. But if a bank's debt-servicing ability is questioned for some reason, for instance because the bank is suddenly expected to make larger losses than before, or because of incorrect rumours about the health of the bank, then a bank may suddenly lose its funding. Then we may have what is usually called a bank run, that is, all of the depositors want their money back at the same time. But the increased element of market funding today means that it is more common for a bank to experience funding difficulties when market agents are unwilling to renew its loans or buy its securities. A bank with funding problems finds it difficult to pay its debts on time, as the bank's assets are difficult to sell. This can lead to the bank lacking sufficient liquidity to manage its daily operations and it may therefore need to suspend payments. The banks' operations thus have an inherent vulnerability that makes it necessary for a bank to ensure that outsiders have confidence in its operations.

Financial markets are vulnerable for slightly different reasons. For a market to function properly it must have buyers and sellers so that an asset can be sold quickly and at the right price. If this is the case, the market has what is known as high market liquidity. A necessary condition for this is that those trading in the markets, the market agents, have confidence in one another.

However, the information available in the financial markets regarding market agents and assets is often inadequate and unevenly distributed, which means that confidence can change easily and rapidly. If confidence between market agents declines, their willingness to trade with one another declines and market liquidity falls. It then takes longer to sell the assets and prices fluctuate more.

Market liquidity can also be disrupted in other ways. Agents may disappear from certain markets, because they wish to retain liquidity for themselves during times of turbulence. They can then choose to put their money in other types of asset, such as government securities, or in accounts with the central bank. Agents may also leave certain markets if the value of an asset suddenly becomes uncertain. Such uncertainty can be reinforced in times of turbulence when financial companies want to sell assets. Potential buyers may then believe that the seller is primarily trying to get rid of their worst assets. In times of turbulence, market prices may also fall sharply if many agents need to sell at the same time. If there are insufficient buyers in this situation, the price of the assets falls more than is warranted, one can say that the assets are sold at "fire-sale" prices. A sharp fall in prices reduces the value of the companies' assets, which in turn can force them to sell off further assets. This can easily develop into a downward spiral with falling prices, further compulsory sales that in turn lead to falling prices, and so on.

Risks can spread throughout the financial system

The different parts of the financial system are closely linked to one another. These links take the form, for instance, of agents borrowing from, or trading with, one another to a very large degree. At the same time, they often obtain funding on the same markets. If a problem arises in one part of the financial system – among one or more agents, in a market or in some part of the infrastructure – it can thus easily and quickly spread to other parts of the system. The risk of this happening is called contagion risk.

The fact that problems spread between the banks is not simply due to having liabilities to one another. Banks also have similar operations and are thus exposed to the same types of risk. If one bank suffers problems, fears may therefore soon arise that other banks are also suffering problems. In other words, what starts as a problem in an individual bank may develop into a confidence crisis for the entire banking system. As some markets are central to, for instance, the banks' funding and risk management, there is also a risk that problems on a market may quickly spread through the financial system and to the banks.

Systemic risk and systemic importance

As the financial system is sensitive and subject to the risk of contagion effects, it is associated with what are known as systemic risks.

The Riksbank usually defines systemic risk as the risk that a disruption will occur in the financial system that could lead to substantial costs for society.

Examples of such disruptions could be that a company active in the financial markets suffers a crisis or that the banks' possibilities to obtain funding in the market are seriously impaired for some reason. The concept of systemically-important is closely related to systemic risk.

The Riksbank has chosen to define an actor, market or part of the financial infrastructure as systemically-important if problems arising in one such agent, market or infrastructure could lead to disruptions in the financial system that would result in potentially large costs to society.

An actor, market or infrastructure can be systemically-important if it is necessary for some other part of the financial system to be able to function, or if it is associated with large contagion risks. The definition of systemically-important varies over time, depending on how the financial system functions at the time in question and on the situation in the world and the Swedish economy in general. This means that even a small agent can be judged to be systemically-important under certain circumstances.

Externalities

A financial crisis affects the whole economy. Decisions by participants in the financial system can thus entail consequences for others, both within and outside of the financial system. These kinds of consequence that affect others are called externalities. The fact that the effects are external means that the participants do not take into account all of the consequences of their operations or actions. For an individual bank that suffers problems or perhaps even defaults, the contagion effects in the financial system are an externality. The bank will thus not take these consequences into account, which means it may take excessive risks. This can cause the systemic risk in the financial system to be higher than is considered desirable from society's point of view.

Activities in the financial markets are also associated with externalities. However, these differ from the earlier-mentioned externalities in that their impact is through pricing. In more concrete terms, market agents have no reason to care about the consequences of their actions for market liquidity or for other agents when they sell financial assets at "fire-sale" prices. Other agents are affected by a fall in prices because prices are used to valuate companies. A large fall in these prices could thus involve a poorer financial position and a loss of confidence in agents other than the one(s) causing the fall. This effect of a particular action in the market is known as an externality. Such collective action in the market can thus lead to market liquidity disappearing or to confidence in a systemically-important bank or banks generally declining, which can in turn lead to a deterioration in the functioning of the financial system. This means that the agents' actions in the financial markets can contribute to systemic risk.

Externalities can also arise when agents use the systems in the financial infrastructure. This can mean that the agents in the infrastructure for some reason choose to use a system in which the risks are too high, from society's perspective, as the costs of a breakdown in the system would to a great extent affect others than the agents themselves.

The financial system is regulated in special procedures

The financial sector's great importance for the economy, combined with systemic risk and the related externalities, provides motivation for special regulation of the financial system. To prevent financial crises, special regulations have been introduced for companies conducting financial operations, such as banks, or supplying components for the financial infrastructure. These regulations aim to ensure that the financial companies have sufficient resilience, partly by requiring that they have adequate capital to reduce the risk of default, and partly that they have the capacity to manage other risks in their operations. These companies also need a permit to conduct their operations and they are under the supervision of an authority. In Sweden Finansinspektionen, the Swedish Financial Supervisory Authority, has the responsibility for supervising financial companies, marketplaces and infrastructure companies.

Another important reason for regulating the financial sector is that the consumers' assets with, and interests in, the financial companies need to be protected. Although consumer protection and protection of the financial system's functions can be regarded as different motives for regulation, measures intended to strengthen one of these often entail consequences for the other. One such measure is the deposit guarantee, which is an important part of the consumer protection. A deposit guarantee means that the state or another agent reimburses deposits in accounts if a bank defaults. However, a deposit guarantee is not just protection for consumers. It also reduces the risk of a bank run and thus contributes to the stability of the system. The Swedish National Debt Office is responsible for the deposit guarantee system.

The deposit guarantee can also have a negative effect on the stability of the system, as it can reduce the depositors' incentive to choose banks with a low risk level over banks with a high risk level, particularly if the latter offer higher interest. Such problems can also arise with other government measures, which in one way or another protect the agents from the consequences of their risk taking. This can lead to excessive risk taking in the financial system.[8] It is therefore important that this type of problem should be reduced as far as possible when designing the so-called safety net. One important link here is that there is an appropriate regulatory framework that provides the right conditions for being able to manage banks in distress without this leading to disruptions in the financial system or to large costs for tax-payers.

8. This phenomenon is usually called moral hazard.

The Riksbank and financial stability under normal conditions

In addition to issuing banknotes and coins and providing a central payment system, the Riksbank supports the stability of the financial system in several ways. Under normal conditions, the Riksbank works on more generally preventing a financial crisis from arising. The Riksbank raises awareness among banks and other financial market participants of the risks the Riksbank has identified. This is intended to get the participants themselves to adopt measures that reduce their risk taking and improve their resilience. This work consists of:

- gathering, compiling and distributing information on the financial system,
- analysing and overseeing the financial system on an on-going basis,
- preventing threats to financial stability by informing of, and warning against, risks that are building up,
- affecting the financial regulatory framework so that it contributes to stability and efficiency.

In its preventive work, the Riksbank has no binding statutory tools to influence financial market participants. Instead, the Riksbank primarily acts (in public and in dialogue with financial system participants) by calling attention to and warning of risks and events that may threaten financial stability.[9]

The Riksbank endeavours to be as open, clear and predictable as possible in its financial stability communication. It is necessary that the Riksbank is open and clear in its assessments of financial stability for the economy's participants to form an opinion of the risks and uncertainties in the financial system, and to act accordingly.

Collaboration with other authorities is important to this preventive work. The Riksbank therefore has on-going contacts with other authorities within this area. According to the Sveriges Riksbank Act, the Riksbank also has the possibility of consulting with Finansinspektionen on important issues dealing with financial stability and Finansinspektionen's supervisory activities.[10]

The Riksbank's views on financial stability are communicated in several different ways. The Riksbank's Financial Stability Report is published twice a year. In this report, the Riksbank presents its assessment of financial stability

9. This is usually called moral suasion.
10. Chapter 4, Section 3 of the Sveriges Riksbank Act.

in Sweden and draws attention to risks that may develop into threats to financial stability. Furthermore, the members of the Executive Board present the Riksbank's assessments in various speeches. In addition, the Riksbank assesses the Swedish financial infrastructure every year and publishes the results. The Riksbank also presents its assessments of financial stability at bilateral meetings with various participants, both in Sweden and abroad. The Riksbank also presents its views on proposed legislation and regulation from the EU, the Swedish Government and Finansinspektionen.

The collection of information and dissemination of knowledge

According to the Sveriges Riksbank Act, the Riksbank has the right to request that information it deems necessary to monitor the stability of the payment system.[11] The Riksbank gathers information for this purpose from various sources.

Statistics Sweden (SCB) compiles financial market statistics on the Riksbank's behalf. This consists of statistical information on Swedish financial institutions and financial markets.[12] These statistics are gathered every month and include information on liabilities and assets among companies in the financial sector, current lending and borrowing rates and other information.

Each year, the Riksbank compiles information on the financial markets and publishes this in the report the Swedish Financial Market.[13] This publication describes the construction and functioning of the Swedish financial system and details the participants active in it.

The Riksbank also gathers statistics from banks and infrastructure companies, such as information on the banks' exposures towards one another in the form of various commitments, the number of transactions in the infrastructure system, and other factors relevant to the functioning of the system.

When necessary, the Riksbank also conducts its own surveys, aimed in various ways at illuminating conditions on the financial markets. For example, twice a year, the Riksbank conducts a risk survey. The aims of this survey are to obtain an overall view of risk on the Swedish fixed-income and foreign exchange markets, and to form an understanding of the participants' views on the market's functioning.[14] Even the manner in which the Swedish public carries out payments has been studied with the assistance of surveys.[15]

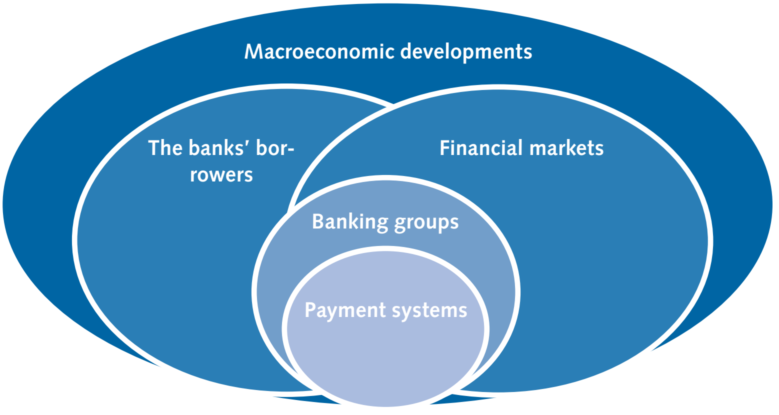
11. Chapter 6, Section 9, Sveriges Riksbank Act.
12. Financial market statistics are available at Statistics Sweden's website, www.scb.se.
13. This publication is available at the Riksbank's website, www.riksbank.se.
14. The results of the risk survey are published both on the Riksbank's website, www.riksbank.se and in the Financial Stability Report.
15. The results of this survey are discussed (for example) in Lars Nyberg's speech Time to change cash to cards? from January 2010. The speech is available at the Riksbank's website, www.riksbank.se.

Furthermore, the Riksbank's international network is very important for gathering information. Through its participation in a number of international working groups, the Riksbank has knowledge of (and participates in discussions dealing with) developments in the rest of the world. (More information on the Riksbank's international work can be found in the section Influencing norms.) The Riksbank has also entered into several agreements with other authorities concerning collaboration on the exchange of information and crisis management. More information on this can be found in the section Cooperating with authorities and other central banks.

On-going stability analysis

The Riksbank continually analyses the development of the financial system's risks and resilience, with the aim of assessing financial stability. Figure 1 illustrates the areas included in the Riksbank's stability analysis. The payment system forms the core of the analysis, as this is where all transactions between participants take place. The banking groups are the main participants in the payment system. These, in turn, are dependent upon developments in the financial markets and also their borrowers. In turn, macroeconomic developments are highly significant for both the financial markets and the banks' borrowers.

Figure 1. What does the Riksbank monitor?



The focus for the Riksbank's analysis and supervision is the parts of the system that are or may be systemically important. The main focus for monitoring is currently on the four major banking groups[16], as they play such a central part in payment mediation and credit supply. Together, these banks account for about three-quarters of the deposits from and loans to the Swedish public.

16. These are Handelsbanken, Nordea, SEB and Swedbank.

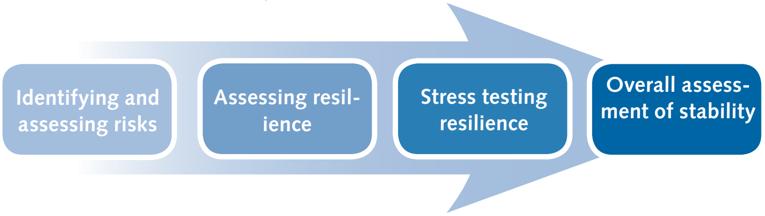
The financial markets are also significant to the Riksbank's analysis, as they are so important to the funding and risk management of the banks and companies. Seen in an international perspective, Swedish banks have a large element of market funding – they fund about half of their lending via securities and half via deposits. Furthermore, about two thirds of their market funding is in foreign currency.

As regards the financial infrastructure, the Riksbank's analysis is focused on those parts that are important to payments by the public and to the smooth functioning of the financial markets. The participants in these systems and the manner in which they use the systems are also significant to the analysis.

Assessment of financial stability

Schematically, the Riksbank's stability assessment and analysis can be split into three stages: identifying and assessing risks, assessing resilience and stress testing resilience. These three stages form the basis of the Riksbank's assessment of financial stability. This is illustrated in Figure 2.

Figure 2. The Riksbank's stability assessment



Identifying and assessing risks

The first stage in the Riksbank's stability assessment involves identifying and assessing risks and threats to financial stability. As a part of this work, the Riksbank monitors and analyses developments abroad. The Riksbank's international network ensures that we receive expert information on developments in the rest of the world and can draw conclusions from this for Swedish conditions. In addition, the levels of pricing and activity on the financial markets can provide early indications of the general mood, willingness to take risks, where risks exist, and how these may change over time. The Riksbank also, more specifically, monitors the risk that financial participants, particularly the major banks, may be impacted by losses, as this can lead to decreased confidence that may result in funding difficulties, which ultimately may lead to bankruptcy.

For banks and other financial companies that lend money, credit risk (the risk that a borrower will be unable to meet interest payments and pay the principal in time) is a significant loss risk. About 60 per cent of Swedish banks' assets consist of lending to the public. Consequently, the Riksbank analyses the major banking groups' borrowers, for the simple reason that, if these run into problems and are unable to repay their loans, the banks will experience problems. The Riksbank pays particularly close attention to large borrower groups, such as property companies, and monitors developments on markets that are significant to lending, such as the commercial property market and the housing market.

Banks convert short-term saving into long-term lending. By doing so, they assume liquidity risk. To assess liquidity risk, the Riksbank monitors both differences in maturities between assets and liabilities, and the banks' chances of obtaining funding on the financial markets. These possibilities are affected by the level of confidence a bank has on the market, and by how well the markets are working. Consequently, the Riksbank analyses the current risks in terms of market liquidity on the most significant markets.

The Swedish banks are becoming increasingly international in their operations, and about half of the assets and liabilities reported on the Swedish banks' balance sheets come from countries other than Sweden. This means that debt-servicing ability among the banks' foreign borrower groups and developments in the international financial markets upon which the banks are dependent for funding now form important parts of the Riksbank's analysis.

The Riksbank's monitoring of the financial infrastructure is focused on ensuring that these systems, their regulatory frameworks and their routines function in a secure and efficient manner. It is important that the system can manage operational risks so that payments and securities transactions can be carried out without any significant disruptions. It is also important that the systems do not entail any credit or liquidity risk for the participants, and that they minimise contagion risks between participants. Infrastructure companies have also become international in recent years, in the sense that some of the systems used by Swedish participants are no longer based in Sweden.

Assessing resilience

The next stage of the Riksbank's stability assessment is to assess the resilience of various parts of the financial system. Resilience is a matter of the extent to which the financial system can cope with a disruption, without this having a negative impact on a function. This concerns the ability to handle disruptions when they occur, as well as of limiting their spread. Put simply, the higher resilience is, the less sensitive the financial system becomes. The analysis of resilience must also be seen in relation to the risks that have built up and been analysed in the individual banks, on the markets and in the infrastructure.

Resilience has different components in different parts of the financial system. For a bank, resilience is largely a matter of its capital and liquidity situation. If a bank incurs loan losses, it can keep or lose the confidence of the markets and the public, depending on how much capital the bank has to cover the losses. Decreased confidence can, in turn, lead to the bank's liquidity situation rapidly becoming strained. Consequently, the Riksbank analyses the banks' capital strength on an on-going basis. The Riksbank also studies the banks' profitability to assess their competitiveness and their long-term ability to build up capital strength and meet loan losses. The banks' liquidity situation is dependent on how they decide to obtain funding, and how sensitive their funding is to disruptions on various markets.

As regards the financial markets, resilience depends on how much confidence the market participants have in one another. This means that any risk that market agents may make sudden and unexpected losses also forms a threat to the functionality of the market. Market resilience is also affected by factors such as the number and size of buyers and sellers, how transparent and understandable the assets on the market are, and the risks associated with the infrastructure in which the transactions are carried out.

Resilience is also a matter of whether problems affecting individual participants, markets or the infrastructure can be kept in isolation, avoiding contagion. The resilience of the financial system is thus also a matter of the contagion risks in various parts of the system. Consequently, the Riksbank continually analyses the contagion risks associated with each bank by examining information on the banks' greatest exposures towards each other and towards other major financial system participants – their counterparty exposures. The Riksbank also analyses the management of transaction flows to identify contagion risks in the financial infrastructure.

Stress testing resilience

Having identified the risks and estimated the financial system's resilience, the Riksbank then assesses whether the system will be able to maintain its functions in the scenario that the Riksbank deems most likely a few years ahead. However, according to the Riksbank's definition of financial stability, the financial system should also be able to maintain its functions in the event of an unexpected disruption. To assess whether the financial system has resilience to unexpected disruptions, its resilience is tested further in what are known as stress tests. These test how the banks will cope with difficult but still plausible scenarios over a certain period of time. Both the banks' capital situation and their liquidity situation are tested.

Subjecting the banks to stress tests entails a shift of focus from speculating on what could go wrong (the number of scenarios here is, in principle, unlimited) to what would happen if something were to go wrong. The aim of this is to bring the banks' attention to the consequences of disruptions, as well as to encourage them to ensure they have sufficient resilience to disruptions that may be difficult to predict, but are still possible. To carry out these stress tests, the Riksbank uses public data and a model that is also available to the public. This means that the results of the stress tests can be made public and can be replicated. Individual test results for the four major banking groups are published in the Financial Stability Report. They also form the basis of bilateral discussions on risks and resilience between each bank and the Riksbank. The Riksbank publishes the test results for individual banks as part of its efforts to be open and clear in its financial stability communications.

Overall assessment

Using these analyses and tests as a background, the Riksbank makes an overall assessment of financial stability in Sweden. If the Riksbank finds that, in relation to the risks, the financial system has enough resilience to cope with an unexpected disruption, without any serious deterioration in the system's functions, then the Riksbank's assessment, on the basis of its definition, is that the financial system is stable. This overall assessment is published twice a year in the Financial Stability Report.

Influencing norms

Like other authorities with responsibility for financial stability, the Riksbank is also engaged in issues dealing with the financial regulatory framework. This is an important part of preventive work, dealing with everything from institutional aspects of international organisations to the way in which individual institutions are regulated and managed in the event of a crisis.

As the internationalisation of financial agents and markets increases, a growing amount of this standard-setting work takes place on an international level. Important international forums in which the Riksbank is active are the EU cooperation, the European System of Central Banks (ESCB), the International Monetary Fund (IMF), the G10 cooperation and the Bank for International Settlements (BIS). The last of these includes the Basel Committee, which sets international standards for banks. Within the framework of the EU cooperation, the Riksbank participates in the EU's Economic and Financial Committee (EFC), which advises the ECOFIN Council and the European Commission on important economic policy and financial matters.

The Riksbank endeavours to formulate regulations to provide a greater economic benefit than cost. In practice, this can be a difficult matter of balancing stability and efficiency, as regulations aimed at promoting financial stability can also result in financial services becoming more expensive.

The Riksbank also makes on-going statements on a large number of proposed Swedish laws, regulations and general guidelines that have been submitted for comment. On the EU level, the Riksbank also replies to consultations regarding proposed directives and other EU and ECB matters.[17] The Riksbank also exercises influence by drawing attention to important regulatory matters in speeches, articles and conferences, both at home and abroad.

17. Responses to submissions and consultations are public and are published on the Riksbank's website, www.riksbank.se.

The Riksbank and financial stability in a crisis situation

Any crisis in the financial system is serious and leads to economic decline, bankruptcies and unemployment. Households and companies may see their assets, for example property or equity funds, fall dramatically in value or disappear altogether, while public finances may also deteriorate drastically. It often takes a long time for the economy to recover, and it is not certain that the losses can be entirely recouped.[18] It is therefore important to reduce these economic costs by exercising good crisis management.

From the Riksbank's point of view, crisis management is one part of the task of promoting financial stability. The Riksbank's crisis management can be divided into three areas:

- supplying liquidity to the financial system,
- communicating the Riksbank's assessments openly and in contacts with market agents,
- cooperating with other authorities in Sweden and abroad.

There are two important preconditions that govern whether the Riksbank will be able to perform crisis management well. First, being able to manage a crisis requires on-going, high-quality stability analyses that keep the Riksbank well informed about the financial system. Second, the Riksbank must maintain its practical ability to manage crises even when conditions are normal. This includes well-prepared routines for decision making and agreements and plans for how different authorities should cooperate during a crisis. It also includes regularly testing regulations, routines and the co-operation between authorities, as well as crisis-management training for personnel. The Riksbank regularly conducts crisis management exercises, both internally and together with other Swedish authorities and stakeholders in the private sector. The Riksbank has also conducted a number of crisis management exercises together with authorities abroad.

Supplying liquidity

In a crisis, liquid funds are often in short supply. Important financial markets that act as sources of funding may be working ineffectively. At the same time, uncertainty and a lack of confidence may mean that the liquidity that is still available within the financial system is not distributed in the same way as under normal conditions.

18. More detailed descriptions of this can be found, for instance, in The Effect of Financial Crises on Potential Output: New Empirical Evidence from OECD Countries, OECD Economics Department Working Papers No. 699, 2009 and in the World Economic Outlook 2009, IMF, 2009.

In such a situation, the Riksbank has several ways of quickly adding liquidity to the system. These differ depending on whether it is a case of providing liquidity assistance to single institutions or general measures to strengthen liquidity.

The Riksbank can provide liquidity assistance to individual institutions under special conditions.[19] The aim of such assistance is to prevent a situation in which a bank is forced to suspend payments and to prevent the effects of such an event from spreading throughout the system. These special conditions may, for example, include the Riksbank accepting forms of collateral other than those that normally apply to the Riksbank's lending. Banking institutions and Swedish companies that fall under the supervision of Finansinspektionen may receive such assistance under exceptional circumstances. One such circumstance is if the Riksbank believes that the institution concerned is systemically important in the situation at that time.[20]

General measures to strengthen liquidity aim to ease a strained funding situation. Such a situation affects interest rates and may lead to a credit crunch in the economy, which in turn may cause problems for both financial stability and monetary policy. General measures include those that make it easier for banks to borrow from the Riksbank.[21] These measures may take several different forms. During the financial crisis that began in the autumn of 2008, the Riksbank added liquidity to the system by:

- offering loans in Swedish kronor at longer maturities than normal,
- increasing access to loans, for example by accepting more types of collateral than previously and widening the circle of financial institutions permitted to borrow from the Riksbank,
- offering loans in other currencies.

The Riksbank may need to offer loans in other currencies because the operations of the banks have become increasingly international, and their dependence on international securities markets has increased. This means that the Riksbank may need to add liquidity in foreign currencies to safeguard the stability of the Swedish financial system. One example of this is the loans in US dollars that the Riksbank offered the Swedish banks in 2008 and 2009. In this context, the currency reserve managed by the Riksbank is an important means of being able to supply liquidity in foreign currencies quickly. Central banks can also help one another by lending currency to each other (see the section on Cooperating with authorities and other central banks).

19. Chapter 6, Section 8, Sveriges Riksbank Act.
20. During autumn 2008, the Riksbank provided exceptional liquidity assistance to two financial institutions, Kaupthing Bank Sverige AB and Carnegie Investment Bank AB.
21. Chapter 6, Section 5, Sveriges Riksbank Act.

By using these measures during crises, the Riksbank temporarily plays the role normally played by financial markets or other sources of funding and thus eases the funding situation for individual banks and for the economy as a whole. The knowledge that the Riksbank offers funding, or is prepared to offer funding, can in itself strengthen confidence in the financial system.

Communication and contacts with market agents

Communication and information are central elements of the Riksbank's crisis management. How a measure is communicated can sometimes be as important as the measure itself. Poor communication has in many cases made financial crises worse, as it opens the door to speculation and rumour. The Riksbank's position is that clear and open communication is a positive force in crisis management. The Riksbank therefore strives to communicate its view of the situation in the financial system openly and clearly and has built up competence and routines for this.

In addition, the Riksbank plays a special role as an oversight authority, which means that the information presented by the Riksbank is and should be perceived as neutral in a different way than the information produced and disseminated by private agents on the financial markets.

In a crisis, the Riksbank constantly communicates with the market agents and discusses the seriousness of the situation and appropriate measures with them. In this dialogue, the market agents also inform the Riksbank of how they perceive the situation and, more specifically, how they see the situation in their own companies. In a crisis, the Riksbank gathers information from the market agents more frequently than under normal circumstances, as the status of the financial system can change drastically in a very short time. The Riksbank may also be called on to assess the systemic importance of a bank, for example, at very short notice. It is usually in the best interests of the market agents to discuss the situation with the Riksbank – it is after all the Riksbank that can come to the aid of banks in a strained liquidity situation. However, the Sveriges Riksbank Act also gives the Riksbank far-reaching powers to require the information it believes necessary from companies that are subject to the supervision of Finansinspektionen.[22]

Cooperating with authorities and other central banks

The Riksbank shares responsibility for mitigating the economic effects of a crisis with other authorities. The Riksbank is responsible for maintaining liquidity in the system. The Swedish Government and the Swedish National Debt Office, as a supporting authority under the Support to Credit Institutions Act (2008:814), have a responsibility for more long-term forms of

22. Chapter 6, Section 9, Sveriges Riksbank Act.

support. This may include, for example, guaranteeing the banks' long-term borrowing or injecting risk capital. Finansinspektionen is responsible for supervising the financial companies as described earlier.

Within the framework of this division of responsibility, more concrete forms of cooperation have been developed for the exchange of information and for consultation between the authorities concerned. For example, Swedish authorities consult each other when assessing whether a particular part of the financial system is systemically important. According to the Support to Credit Institutions Act, support may only be given to credit institutions that are judged to be systemically important. The cooperation between authorities in Sweden is stipulated, for instance, in a written agreement, what is known as a Memorandum of Understanding.[23] This agreement stipulates which information the authorities should exchange and how the exchange should be made. Moreover, it stipulates how the authorities can establish a consultation group that works both to prevent crises and to manage crises.

The increased internationalisation of financial activities makes greater demands for central banks in different countries to cooperate on crisis management. The cooperation between authorities in different countries is also described in Memorandums of Understanding.[24] Within the EU there is an overall agreement on cooperation on cross-border issues. Under the umbrella of this agreement the Ministries of Finance, central banks and financial supervisory authorities in the Nordic and Baltic countries have signed an agreement on more in-depth cooperation to manage issues relating to cross-border financial stability and crisis management in the region. Moreover, the Riksbank has separate agreements with the central banks in the Nordic and Baltic countries respectively regarding cooperation in the event of problems in a cross-border bank.

The central banks also cooperate by lending money to one another and thus contribute to mutual macroeconomic and financial stability. This type of loan was made in various forms during the recent financial crisis:

- the Riksbank offered short-term funding through swap agreements to central banks in neighbouring countries to make it easier for them to take measures to stabilise their own financial systems.[25]
- the Riksbank entered into swap agreements with the US Federal Reserve and the ECB, which gave the Riksbank the possibility to borrow US dollars and euros to maintain the Riksbank's capacity to supply liquidity in foreign currencies.

23. This agreement is published on the Riksbank's website, www.riksbank.se.
24. The international agreements the Riksbank has entered into are published on the Riksbank's website, www.riksbank.se.
25. During the most recent financial crisis the Riksbank signed swap agreements with Iceland's, Estonia's and Latvia's central banks. A swap agreement in this respect refers to an agreement between two parties to receive one currency in exchange for another.

Financial stability in the period ahead

During the second half of the 1990s, the central bank world began to focus increasingly on issues concerning financial stability. Contributing to this were the international developments that began in the 1980s, with rising globalisation, rapid developments in technology and extensive deregulation of the credit and foreign exchange markets. From a Swedish point of view, the domestically-generated crisis at the beginning of the 1990s was the alarm call that formed the starting point for intensified work on financial stability.

Both the need to safeguard financial stability and the manner of doing so have gradually changed. The financial markets have become increasingly complex as a result of new financial instruments and increased securitisation, as well as globalisation and market integration. Developments in the financial sector have become increasingly important to the economy. All in all, this means that vulnerability to disruptions in the financial system has become greater, at the same time as the sources, and effects, of the disruptions have grown in number.

The international financial turbulence that began in 2007 made this clear. The liquidity problems that became increasingly evident at system level were something new, and something for which neither the agents in the financial system nor the supervisory authorities were quite prepared. When the Swedish banks' market funding possibilities declined drastically in autumn 2008, there was an imminent risk that funding problems could threaten the banks' survival. Like many other central banks, the Riksbank then had to temporarily take on the role normally played by the markets. With hindsight, it is fairly evident that prior to the crisis there was a lack of comprehension among agents and authorities of the systemic risk associated with financial markets.

Furthermore, the crisis made it clear that cross-border operations in the financial sector made demands not only of regular supervision work, but also of international coordination of crisis management. As the problems that arose were largely of an international nature, it was also evident that international solutions were required. There were thus substantial demands for coordination and cooperation between authorities in different countries.

In the light of the recent crisis, there is now on-going intensive work on increasing the resilience of the financial system in various ways. A new regulatory framework, known as Basel III, is being drawn up as this brochure is being written, and this aims to better equip the banks to deal with situations like those arising during the crisis. The EU has recently decided to strengthen supervision and oversight in the European Union by establishing three European micro supervision authorities and also a European Systemic Risk Board (ESRB). Through the ESRB the Riksbank can contribute to joint measures in the form of warnings and recommendations when overall financial stability is threatened.

At the same time, many authorities around the world have begun to review their work on financial stability, and this is also the case in Sweden. One important question that is currently being discussed is what tools the central banks need in their work on financial stability. A clear example of this type of problem is the recent economic downturn in the Baltic countries, where Swedish banks conducted expansive lending. The Riksbank issued warnings as early as 2005 in its Financial Stability Report that this was not a sustainable development. Despite an even sharper tone in later reports, this warning and other similar measures did not have the intended effect. Looking back, more powerful measures would have been necessary to remove the threats to the stability of the Swedish financial system that were building up with the banks' commitments in the Baltic countries.

There are thus strong reasons for closely examining allocation of responsibility, aims, working methods and new tools in the field of financial stability. The financial crisis has, like earlier crises, shown that the constant development of financial activities requires constant new thinking in the field of financial stability. At present there are increasingly intensive discussions on the need to further develop macroprudential policy and tools to better oversee and counteract the build-up of financial systemic risk.

The international discussions and the on-going inquiry work in Sweden will probably soon lead to more decisions that affect the scope and design of the Riksbank's work on promoting financial stability. This brochure will therefore be regularly reviewed and updated.

The Riksbank's publications on financial stability

- Financial Stability Report. This report contains the Riksbank's analysis and assessment of the stability of the Swedish financial system. It is published twice a year.
- The Swedish Financial Market. This report provides an overall description of the components of the financial sector in Sweden. Moreover, it explains how these markets, institutions and systems function and what their main tasks are in the economy. Published once a year.
- Evaluations of the systems in the Swedish financial infrastructure. Published annually for each individual system on the Riksbank's website.
- Articles, speeches and responses to consultations regarding financial stability are published on the Riksbank's website.
- The Riksbank's agreements on cooperation with other authorities are published on the Riksbank's website.
- The Riksbank's Rules and Regulations for RIX and Monetary Policy Instruments are published on the Riksbank's website.

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