

Basel III – what and why?

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The global financial crisis that began in 2007 has led many countries to tighten the regulation of banks. In most cases, these changes follow the strengthening of international regulatory standards set by the Basel Committee. In this article, I explain what the Basel Committee is, the background to the stricter standards, what these standards mean and why they are important for Sweden and Swedish banks.

Issues addressed in the article

Following the international financial crisis that started in 2007, many countries have introduced tighter regulations for banks. A large part of these national regulatory changes have been initiated and coordinated by global agreements on more stringent regulations. The new global regulatory standards for banks mean stricter requirements for banks' capital adequacy and new requirements for banks' liquidity positions. Most of these regulatory changes follow from global agreements at the so-called Basel Committee, which has dominated global standard-setting for banking regulation following the crisis. There may hence be a need to study a number of issues more closely.

1. What is the Basel Committee?
2. Why do banks need special regulation?
3. Why were the old regulations insufficient?
4. What are the greatest differences between the old and new regulations?
5. What remains to be done?
6. What do the new regulations mean for Sweden?

In this article, I will try to answer these questions one by one.

What is the Basel Committee?

The aim of the Basel Committee on Banking Supervision, normally referred to as just the Basel Committee, is to promote global financial stability by improving and harmonising both bank regulation and the supervision of banks. Another purpose is to promote banks' sound risk management practises. The committee achieves this by being the main

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standard-setter for global banking rules and by being a forum for cooperation on banking supervisory matters.¹

The members of the Basel Committee are central banks and supervisory authorities from most of the countries with large financial sectors. The membership also reflects a desire for geographical diversity among the members. As of February 2016, 27 countries and the EU are represented in the Basel Committee.² Formally, the committee reports to a group called Governors and Heads of Supervision (GHoS), which, in turn, consists of the central bank governors and heads of supervision of the member countries.

Among other things, the Basel Committee develops minimum standards for banking regulations. Countries are therefore free to implement stricter rules in their countries but not rules that are less strict. The committee also develops guidelines and sound practices for how banks and supervisory authorities should behave. These guidelines and sound practices are not as binding as standards but nevertheless indicate what the committee thinks that banks and authorities should adhere to or what it considers to be appropriate behaviour.

The committee normally meets four times a year and has about thirty sub-groups that discuss various supervision issues or draft new regulatory proposals. In addition, the Bank for International Settlements (BIS) provides a secretariat consisting of over 20 people.

Formally, the Basel Committee is not an authority or even a legal entity. It is an informal gathering of authorities that have decided to meet regularly to discuss regulatory and supervisory issues. The focus of the regulations is on "internationally active banks", or to be precise: banking groups. Despite this, the committee lacks clear definitions of what is meant by both "internationally active" and "banks". The definitions therefore vary from country to country, but, in most cases, it is still fairly clear which institutions are included. All members of the Basel Committee are committed to promoting financial stability as well as to implementing and applying BCBS standards in their respective countries. All agreements must be implemented into each country's national legislation in order to become valid. Formally, therefore, the Basel Committee has no power. Instead, formal decisions are taken by each country's legislative authority. In certain countries, this power has been partially

1 See Basel Committee on Banking Supervision (2013a) which contains the Basel Committee's charter.

2 Basel Committee members are central banks and supervisory authorities from 27 countries. Argentina, Australia, Belgium, Brazil, Canada, China, the EU (represented by the ECB and the Single Supervisory Mechanism (SSM)), France, Germany, Hong Kong, India, Indonesia, Italy, Japan, Luxemburg, Mexico, the Netherlands, Russia, Saudi Arabia, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. A number of observers also participate. The Bank for International Settlements (BIS), Chile, the European Banking Authority (EBA), the European Commission, the United Arab Emirates, the International Monetary Fund (IMF), Malaysia and the Basel Consultative Group. The latter is a Basel Committee group in which central banks and supervisory authorities from a number of other countries are represented. Originally, the Basel Committee consisted of the G10 countries plus a few other countries with large financial sectors. The membership has gradually been expanded, and the aim has been to a) include countries with substantial financial sectors and b) achieve a globally coverage in the membership. The most recent major expansion occurred in 2009, when firstly Australia, Brazil, India, China, Mexico, Russia and South Korea, and then Argentina, Indonesia, Saudi Arabia, South Africa and Turkey became members, see Basel Committee on Banking Supervision (2009a) and Basel Committee on Banking Supervision (2009b). In 2014, the EU and the Single Supervisory Mechanism (SSM) along with Indonesia's supervisory authority became full members while Chile, United Arab Emirates and Malaysia were adopted as observers.

delegated to supervisory authorities. However, in practice, the committee is the central global standard-setter and, as all members are expected to comply with the agreements concluded, the committee plays a significant role for global banking regulations.

THE BASEL COMMITTEE'S DECISION-MAKING

Before the Basel Committee reaches an agreement on new rules, a great deal of time is devoted to extensive and prolonged preparatory work. Normally, the Basel Committee tasks a sub-group to discuss and draft a proposal. Much of the practical decision-making therefore takes place in the committee's sub-groups. In more controversial issues, the committee itself provides guidance on how the sub-group should move forward. This work can take a couple of years. When there is a more concrete proposal for new standards, the proposal is sent out for a public consultation in which banks, interest groups, authorities and others may comment on and criticise the proposals. This is an important part of the work of ensuring that the proposals have the intended effect. Another important aspect of the decision-making process is to collect and analyse underlying data from banks and other institutions in order to study the consequences of different proposals more closely. Normally, the analyses are based on data from over 200 banks across the whole world. The sample includes the largest banks, but data from smaller banks are also included. The committee does not take decisions on regulatory matters until it has considered consultation responses and analysed the consequences with the assistance of data from the banks.

Decisions at the Basel Committee are based on consensus and are not taken on the basis of a vote. This means that all members must accept, or at least tolerate, the proposal if it is to be an agreement. At the same time, all members are well aware of the importance of global agreements in this area. Consequently, if most other members can accept an agreement, individual members will be reluctant to oppose it, even if they are not entirely satisfied with all its components. In principle, therefore, a single country seldom blocks an agreement, and especially if it is a small country like Sweden. However, it is important that all members can accept and defend the agreements they have accepted as these regulations are to be implemented in national legislation later on. If a country absolutely refuses to implement a regulation, there is no higher instance to which the other countries can appeal. Decision-making through consensus creates a special negotiating climate in the committee, with a focus on convincing others and reaching a compromise, rather than clarifying differences of opinion. In major issues, the Basel Committee's decisions are normally endorsed by the Governors and Heads of Supervision (GHoS), while politically highly-sensitive matters concerning levels and so on are, in practice, decided by the GHoS, following preparation by the Basel Committee and its sub-groups.

FROM BASEL REGULATIONS TO SWEDISH REGULATIONS

As Sweden is an EU country, Basel agreements are normally implemented through EU law before being introduced in Sweden. The EU's legislative process starts with the European Commission submitting a legislative proposal. In the financial markets area, the various EU Member States' ministries of finance (ultimately the Council of the European Union) then negotiate to reach a joint position. In parallel, the legislative proposal is discussed by the European Parliament. For it to pass into EU law, the proposal must be approved by both the Council of the European Union and the European Parliament. EU laws can be enacted either in the form of an EU regulation or an EU directive. An EU regulation becomes directly applicable in all Member States whereas an EU directive assumes that the Member States will implement the regulations into national law. This means that, if it is an EU directive, the regulations must be adopted into Swedish legislation, as decided by the Riksdag (the Swedish parliament) or other statute, for example regulations decided by the Government or a public authority.

Banking regulations often contain technical details that are not easily formulated in an EU regulation or an EU directive. This means that EU regulations and EU directives are often complemented by more detailed rules. Directives and regulations are therefore often complemented by guidelines determined by the European Banking Authority (EBA) or by so-called delegated acts or implementing acts determined by the Commission.

BASEL IS NOT JUST ABOUT RULES

Over the last five years, the Basel Committee has not just taken decisions on a number of new rules but also evaluated how each country has implemented the regulatory framework. These evaluations are performed by staff from other central banks and supervisory authorities and then published.³ Any deviations are highlighted and, in many cases, countries have already adjusted their legislation and their rules before the evaluations have been completed to ensure that their own rules correspond to the Basel framework. These public evaluations have hence put pressure on the countries to implement the regulatory frameworks as they were intended. They have also reduced the differences between the banking regulations of the various countries. In a few cases, differences remain, however. The EU, for example, has not implemented all parts of the Basel III agreement and deviates on a few minor points. The evaluations highlight such differences.

The Basel Committee's regulatory framework for banks has been developed gradually. Several of the original ideas and concepts are still topical. The various frameworks that are discussed, Basel I, Basel II, Basel 2.5 and Basel III are gradual refinements of one regulatory framework, rather than entirely new independent regulatory frameworks. In order to understand the current regulatory framework and the discussions being pursued, it is therefore important to look at the issues from a historical perspective. Consequently, in the next section, I present an overview of the Basel Committee's history.

³ In Basel terminology, these evaluations are called Regulatory Consistency Assessment Programmes (RCAP).

THE HISTORY OF THE BASEL COMMITTEE⁴

The Basel Committee was set up in 1974 to improve global financial stability by creating a forum for cooperation between countries on banking supervisory issues. When the Bretton Woods system of foreign exchange rates ended in 1973⁵, significant currency risks arose among certain internationally active banks. In June 1974, for example, the West German supervisory authority revoked the banking license of the German bank Herstatt when it was discovered that its foreign exchange exposures were three times greater than its capital. For similar reasons, the US bank Franklin National Bank of New York was forced to close later the same year. In both cases, this led to significant losses for banks in other countries with shocks propagating through the financial system. It became obvious that something had to be done to reduce such risks. The central bank governors in the G10 countries⁶ therefore decided at the end of 1974 to create a committee that would later be called the Basel Committee.

Focus on supervision

The initial purpose of the committee was to ensure that all internationally active banks were under supervision and that the supervision was sufficient and consistent across borders. The first agreement, **the Concordat**, was concluded as early as 1975 and stipulated principles for the supervision of banks' foreign branches.⁷ The principles were updated and extended in 1983⁸ and 1990⁹. In 1992, they were redesigned and became minimum standards for the supervision of internationally active banks.¹⁰ In the mid-1990s, the Basel Committee cooperated with a group known as Offshore Group of Banking Supervisors to further develop principles for how supervisory authorities should cooperate on the supervision of banks active in several countries.¹¹ Since then, this document has been recognised by 140 countries around the world and has hence become the standard for cooperation between supervisory authorities in home and host countries.

At the same time, the Basel Committee developed basic principles for how supervision should be conducted more generally. These are usually called the Basel Core Principles. The first version of these basic principles for effective banking supervision was adopted in September 1997,¹² and was then successively reviewed and updated in 2006¹³ and

4 This description has been inspired by the Basel Committee on Banking Supervision (2105d) which contains a slightly longer description of the history of the Basel Committee. Goodhart (2011) contains an even more detailed description of the history of the Basel Committee up until 1997.

5 The Bretton Woods system was a monetary system with fixed foreign exchange rates linked to gold. The system was the basis for exchange rates among the world's most important currencies from 1945 to 1973.

6 The G10 countries comprised Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, Switzerland, the United Kingdom and the United States.

7 See Basel Committee on Banking Supervision (1975).

8 See Basel Committee on Banking Supervision (1983).

9 See Basel Committee on Banking Supervision (1990).

10 See Basel Committee on Banking Supervision (1992).

11 See Basel Committee on Banking Supervision (1996c).

12 See Basel Committee on Banking Supervision (1997).

13 See Basel Committee on Banking Supervision (2006).

2012¹⁴. These core principles are also used by the International Monetary Fund (IMF) and the World Bank when they evaluate the financial systems of various countries. They have thereby taken on a significance far beyond the member countries of the Basel Committee.

Focus on regulation as well – Basel I

As early as the beginning of the 1980s, it became clear that the Basel Committee could not just focus purely on supervisory issues. Crises in Latin America at the start of the 1980s strengthened unease that the banks' capital adequacy was insufficient and that this could create contagion effects in other countries. There was therefore an increased need to establish certain minimum standards for internationally-active banks' capital adequacy. In the mid-1980s, the Basel Committee therefore started work on reaching an agreement on certain minimum levels for capital adequacy. Its aim was to strengthen the stability of the international banking system and to reduce the competitive advantages that arose when requirements for the banks' capital adequacy differed from country to country. After a public consultation of the proposal an agreement was reached in July 1988,¹⁵ of what is normally referred to as **Basel I** or "**the Accord**". In somewhat simplified terms, the Basel I accord stipulated that banks should have capital equal to at least 8 per cent, adjusted for the risk of the exposure (see below).

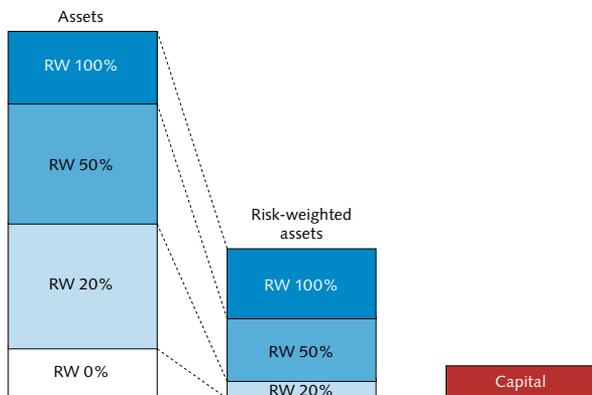
Basel I assumes that the credit risk inherent in a bank's exposure varies depending on the type of exposure and therefore capital requirements need to be risk-adjusted. The risk adjustment was made by categorising the bank's credit risk into one of four different risk classes.¹⁶ The exposures with the highest risk (for example corporate lending) were given 100 per cent as a risk weight. Slightly less risky exposures (for example mortgages) were given 50 per cent as a risk weight. Certain other exposures (for example interbank lending) were given 20 per cent as a risk weight and the safest exposures (for example certain government securities) were given 0 per cent as a risk weight. Risk-weighted assets were calculated by multiplying the risk weights by the size of the exposures. Under the agreement, internationally active banks – in order to cover the credit risks – were required to have equity amounting to at least 8 per cent of their risk-weighted assets (see also Figure 1). The same basic idea of risk weights still remains today. A risk weight of 100 per cent implies, in other words, that a bank must cover the exposure with 8 per cent capital, while the remaining 92 per cent can be borrowed from depositors or from the markets. A risk-weight of 50 per cent implies that the capital requirement is 4 per cent of the size of the exposure. Under the agreement, the countries should implement the new capital requirement rules by the end of December 1992.

¹⁴ See Basel Committee on Banking Supervision (2012a).

¹⁵ See Basel Committee on Banking Supervision (1988).

¹⁶ There were actually five risk classes. In addition to those listed, there was one set at 10 per cent, but it was hardly used, so I will ignore it in this article.

Figure 1. Risk-weighted assets



RW = Risk weight

From the start, the idea was that the minimum regulatory framework should evolve over time, as the financial sector is constantly developing and changing. The first fine-tuning took place in November 1992 when the Basel Committee specified the definitions of banks' loss allocations and provisions for future losses in more detail.¹⁷ Further fine-tuning of how the banks could calculate the net amount of various counterparty exposures occurred in April 1995¹⁸ and April 1996¹⁹.

At the same time, the Basel Committee was working to cover more risks. Banks are not just exposed to credit risks, that is, the risk of borrowers not being able or willing to pay them back in full and on time. Another major risk is market risk, which is the risk that the market price of an asset may vary. If a bank buys and sells an asset, it may make a loss in this trading. In January 1996, therefore, an agreement was reached on how market risks (for example on exposures to foreign exchange, fixed income instruments, equities, commodities and derivatives) would have to be covered by capital. This agreement was known as the **Market Risk Amendment**²⁰. The regulations for market risk were then adjusted in 1997 and 2005.²¹

The Market Risk Amendment thus meant that the Basel Committee had made a conceptual distinction between the banking book, where traditional credit risks were assessed and covered by capital, and the trading book, where market risks were assessed and covered by capital. The new Market Risk Amendment also meant that banks were allowed, for the first time and under certain strict conditions, to use their own internal models for estimating their risks and hence the capital they need to hold.

17 See Basel Committee on Banking Supervision (1991).

18 See Basel Committee on Banking Supervision (1995).

19 See Basel Committee on Banking Supervision (1996b).

20 See Basel Committee on Banking Supervision (1996a).

21 See Basel Committee on Banking Supervision (2005). As part of Basel III, the committee decided in January 2016 to amend the market risk regulations (see Basel Committee on Banking Supervision (2016b)). I will return to this issue on page 85.

Basel II

Towards the end of the 1990s and in the early 2000s, it became increasingly clear that the existing credit risk categories did not fully reflect the risks taken by banks. The rules in Basel I implied that all corporate lending was given a risk weight of 100 per cent regardless of the risk in the exposure to the company. The bank therefore needed the same amount of capital for all its corporate lending, regardless of whether it was an established company with a stable cash flow or a new start-up on an uncertain market. Similarly, all mortgages were given a risk weight of 50 per cent regardless of the risk associated with the borrower. Neither was any differentiation made between mortgage holders who were highly likely to repay on time and those who imposed a larger risk on the bank. The Basel Committee concluded that better risk adjustment was needed in capital adequacy calculations and therefore drafted a new version of the regulatory framework. The **Basel II** accord was concluded in June 2004, after six years of intensive efforts.²² Member countries should implement the new framework by the end of 2006. Fine-tunings and extensions to market risk and operational risks followed in 2005²³ and in June 2006, a more comprehensive Basel II regulatory framework was published.²⁴ As a result of Basel II, the regulatory framework became more risk-sensitive but also more complex. While the Basel I accord consists of 30 pages in total, the Basel II text is no less than 347 pages. The trade-off between risk sensitivity and simplicity is something that the Basel Committee has wrestled with ever since.

Basel II comprises three pillars: **Pillar 1** is the quantitative minimum capital requirements that must exist by law. The capital requirements cover credit risks, market risks and operational risks. Each area includes *standardised approaches* that legally stipulate the risk weights that should be used for different types of exposure and thereby how much capital is required. The standardised approaches could be said to be a refinement of Basel I. In addition, there are *internal models*, where the banks themselves may estimate certain parameters if they have enough data and obtain the approval of the supervisory authority. For market risk, the banks can make use of their internal models to measure Value at Risk (VaR).²⁵ For operational risks, the capital requirement depends on the size of the bank and on the bank's previous operational losses.²⁶ For credit risk, there are two different internal models, the Foundation Internal-Ratings-Based approach (F-IRB) and the Advanced Internal-Ratings-Based approach (A-IRB).

22 See Basel Committee on Banking Supervision (2004a).

23 See Basel Committee on Banking Supervision (2005).

24 See Basel Committee on Banking Supervision (2006a).

25 Value at Risk (VaR) is a measure of the market risk inherent in an investment. A VaR of 95 per cent for 10 days is the maximum amount the bank risks losing during a 10-day period with a probability of 5 per cent.

26 Operational risks include legal risks and fraud risks, among others.

In both IRB methods, the risk is measured in four main dimensions:

1. probability of default - **PD**,
2. loss given default - **LGD**,
3. exposure at default - **EAD**, and
4. maturity - **M**.

For a given M, the expected loss is calculated by multiplying $PD \times LGD \times EAD$. The purpose of capital is to cover any unexpected losses. The bank should cover the expected losses via fees and its pricing. By calculating the expected losses as above and given certain distributional assumptions of the losses as specified in the Basel II regulations, the bank can calculate *unexpected* losses. In the foundation IRB, the bank may estimate PD, but LGD and EAD are stipulated in the regulation for each exposure class. In the advanced IRB, the bank may also estimate LGD and EAD.

Since the internal models generally lead to lower capital requirements for the banks, a floor was also introduced into the Basel II accord. This means that the banks' risk weights may not decrease too much when the banks use internal models. The floor is set so that the banks' risk-weighted assets should not be permitted to fall below 80 per cent of what they would have been under the Basel I model. The Basel II floor was originally intended to be temporary but has not been abolished and still remains in place, although some countries no longer apply it.

Pillar 2 complements the minimum requirements under Pillar 1 with individual requirements for each individual bank that are based on the supervisory authority's evaluation of the bank's aggregate risks. The supervisory authority is to consider all risks, including those that are not covered by the rules in Pillar 1. It may be a question of more qualitative issues such as legal risks, strategic risks, reputational risks, corporate governance issues or how effective the bank's internal risk reporting system is, but also specific risks such as the interest rate risk in the banking book. The last of these risks is linked to what happens with the bank's earnings, balance sheet and risks if the general interest rate changes. Under Pillar 2, the supervisory authority can place additional capital requirements on the bank to cover such risks. These capital requirements will then be specific to the individual bank and not affect other banks.

Pillar 3 contains detailed requirements for the risks and exposures the bank must make public. The aim is ultimately to reduce the asymmetric information so that market participants can better estimate the bank's risks. This subjects the banks to market discipline. The Pillar 3 requirements stem from the fact that it is difficult for an outsider to estimate a bank's risk. The Basel Committee wants to reduce the informational disadvantage of market participants by tightening the requirements on what the banks must communicate to the market.

Compared with Basel I, Basel II also placed much tougher demands on supervisory authorities. They were obliged to acquire both detailed knowledge of the banks' internal models. They were also forced to learn to assess and approve such models. Their need

to coordinate the work of approving such models with supervisory authorities in other countries also increased as many banks have subsidiaries in other countries and the models are in many cases used in several countries.

When the global financial crisis broke out in 2007-2008, the Basel II framework was completely new. However, the crisis made it necessary to fundamentally revise the Basel regulatory framework, paving the way for Basel III. I will return to Basel III later on, but, to fully understand Basel III, it is necessary to first briefly repeat why banks are special and why they need to be regulated more than other companies.

Why do banks need special regulation?

There are several reasons why banks need special regulations. Firstly, banking entails specific liquidity risks. Secondly, banks are particularly important for the real economy. By being the actual channel for the large majority of payments, they are vital to almost all other financial activity. Thirdly, experience tells us that bank crises have high economic costs. The external effects of bank crises are considerable. Fourthly, and as a consequence of the first arguments, it may be difficult for the government to allow large banks to fail as they may be systemically important. The banks and market participant naturally know this, which means that the banks sometimes count on implicit guarantees from the government. This, in turn, distorts the banks' incentives. Consequently, banks are likely to take greater risks in their operations than they otherwise would. If so, this will also lead to higher risks in the economy as a whole. I discuss these four arguments in more detail in the following sections.

BANKS HAVE SPECIAL LIQUIDITY RISKS

A traditional bank receives deposits from companies and the general public. These include, for example, the wage and savings accounts of private individuals, as well as the liquid funds of companies. These are reported as liabilities for the bank. At the same time, the bank lends funds to other companies and households. These loans, in the form of mortgages and corporate loans, are reported as assets for the bank.

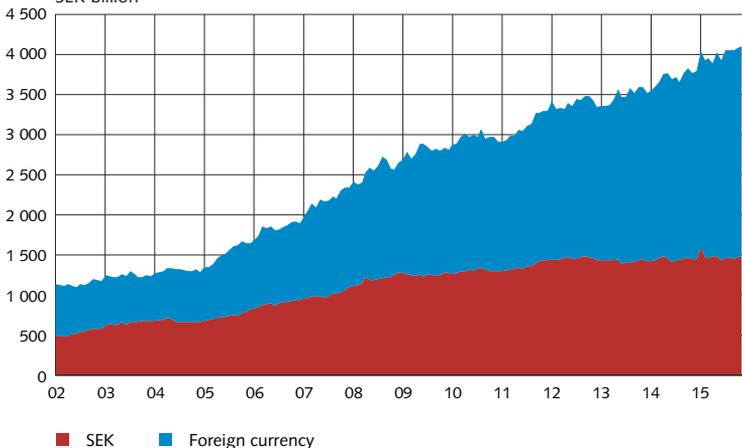
The vast majority of the deposits are immediately accessible to the companies and households that have deposited the funds and, in addition, are expressed in nominal terms. The depositor can use the funds directly and a deposit of SEK 100 will be worth SEK 100 (plus any interest), regardless of how the bank has invested the assets. As most depositors also use these funds to make their payments, they want them to be nominally determined and not dependent on the value of the bank's assets. To make their payments, most people prefer to have a bank account rather than an account with a money-market mutual fund, the value of which may fluctuate both upwards and downwards. At the same time, the bank's lending is long-term. This difference between, on the one hand, the bank's short-term and nominally determined deposits (liabilities) and, on the other, its long-term lending of funds (assets) creates special liquidity risks for the bank. If all

depositors want to withdraw money at the same time, the bank will have problems, as it risks not having enough liquid funds. When the deposits are nominally determined, those who wish to withdraw funds first may take out the full amount whereas those who come last risk getting nothing. When the depositors realise this, so-called bank runs may occur, as everyone wants to withdraw their money at the same time, preferably before everybody else. Simply a rumour that the bank is in trouble might be sufficient for depositors to want to withdraw their money before others do.²⁷ As the bank's lending is long-term, the bank cannot demand mortgage holders and companies to pay back at short notice. The bank thereby risks liquidity problems.

One way of reducing such problems is to introduce a deposit guarantee.²⁸ Although deposit guarantees have been introduced in most countries, bank runs have nevertheless occurred in recent years.²⁹ This suggests that deposit guarantees reduce, but not necessarily completely eliminate, the problem of bank runs. In addition, deposit guarantees can create moral hazard problems. The deposit guarantee reduces the incentives of depositors to monitor the risks of the bank. The deposit guarantees needed to reduce the risk of bank runs thereby, in turn, reinforce the government's need to control the risk-taking by banks.

The major Swedish banks³⁰ obtain funding not only via deposits from the general public and companies. For several years, much of their funding has come from market participants, often abroad. It is mostly foreign mutual funds and other professional investors who lend to Swedish banks. Figure 2 illustrates this by showing that significant and growing amounts of the banks' wholesale funding originates abroad.

Figure 2. The major Swedish banks' wholesale funding in Swedish krona and foreign currency
SEK billion



27 See Diamond and Dybvig (1983).

28 Most countries have also introduced a deposit guarantee that compensates the depositor up to a certain proportion of the deposit, should the bank fail. In Sweden, the depositor is covered for up to the equivalent of EUR 100,000.

29 One example is the British bank Northern Rock, which was subject to a bank run in September 2007.

30 The concept of "the major Swedish banks" is used in this article to denote the banking groups Nordea, SEB, Svenska Handelsbanken and Swedbank.

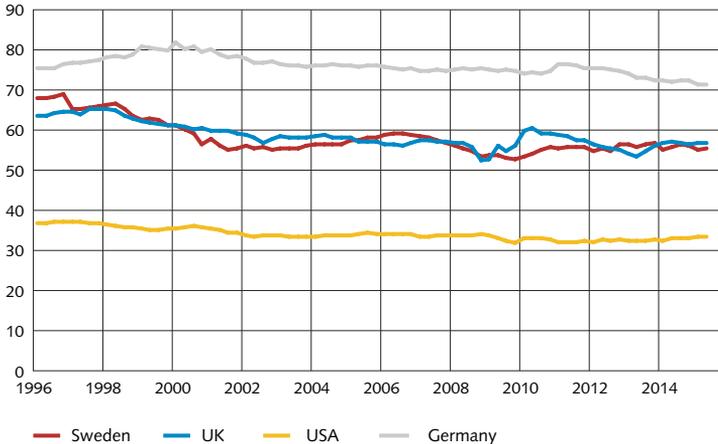
Even if providers of wholesale funding cannot withdraw their money exactly when they wish, the problem of bank runs is not absent with this type of funding. The banks need to renew this borrowing on a regular basis and the funding can quickly disappear if they do not have a high level of confidence among these foreign investors. This part of the banks' funding is not covered by deposit guarantees, either.

BANKS ARE IMPORTANT TO THE REAL ECONOMY

Banks are key players in processing payments and supplying credit to the economy. When Swedish banks pay each other, the transaction takes place via the Riksbank's payment system RIX. About SEK 430 billion kronor pass through this system on an average bank day.³¹ This means that an amount equal to the entire annual Swedish GDP passes through RIX in less than two weeks. If one of the major banks were to have serious problems, the effects, even on the same day, could therefore be dramatic for the other banks and ultimately for the entire Swedish economy. There are obviously contingency routines and other security arrangements to avoid such effects but this still indicates the importance of banks for the economy.

Banks are responsible for a large share of the lending that takes place in the economy. Among EU Member States, banks are responsible for around 55-80 per cent of total lending, (see Figure 3).³² If major banks fail, this may therefore have a major impact on lending and other financial services in the economy.

Figure 3. The banks' share of total lending in a selection of countries
Per cent



Source: BIS "Credit to the non-financial sector", see www.bis.org/statistics/totcredit.htm

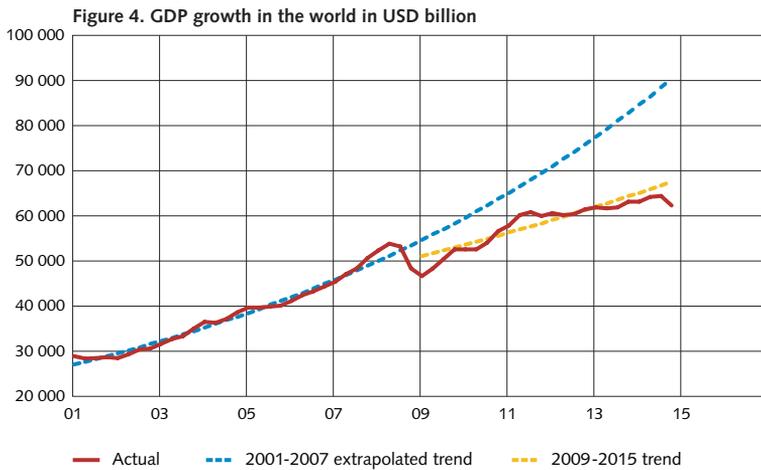
31 For more data, see, for example, Sveriges Riksbank (2015a), page 23.

32 The level of bank credit provision is lower in some countries, for example the United States, where companies obtain funding via market borrowing to a larger extent. Furthermore, it is not easy to estimate total lending in the economy. There are a number of issues with definitions, for example, how the funding of different subsidiaries in corporate groups should be considered. Is it lending or just internal transactions? If these internal transactions are excluded from total lending, the banks' share of total lending in Sweden rises to about 80 per cent.

BANK CRISES HAVE HIGH ECONOMIC COSTS

Financial crises have occurred for many hundreds of years.³³ Modern banks have a slightly shorter history but bank crises have nevertheless been a regular occurrence over the last 200 years. Common to these crises has been that they have also come at a major cost to the real economy.³⁴

Figure 4 shows how the global financial crisis 2007-2010 affected the development of GDP in the world. The red line shows actual GDP growth in a large number of countries. The broken blue line shows a trend based on data from 2001 to 2007, which has been extrapolated. Expressed in different terms, it could be said that, if GDP had developed in the same way post-2007 as it did during the period 2001 to 2007, average GDP would have followed the broken blue line. The broken yellow line instead represents the trend after the global financial crisis in 2007-2010. Even though GDP fluctuates somewhat over time, the figure is rather striking.



Note. The figure is based on seasonally-adjusted quarterly GDP data in USD billion (where up-to-date currency rates have been used) from the following countries: Argentina, Belgium, Brazil, Canada, China, France, Germany, Hong Kong, India, Italy, Japan, Korea, Luxemburg, Mexico, the Netherlands, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States.
Source: BIS³⁵

The figure indicates three things. Firstly, the global financial crisis led to a heavy fall in GDP. Secondly, the GDP fall has been permanent insofar as the economy has not recovered from this following the crisis. The trend of the GDP level is considerably above the actual outcome after the crisis. Thirdly, average GDP growth is clearly lower in the aftermath of the crisis. Currently, GDP is thirty per cent lower than if growth had continued in

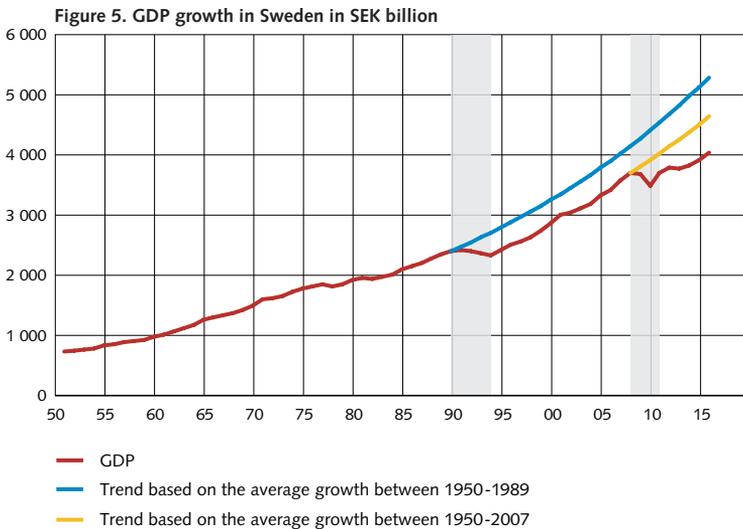
33 See Reinhart and Rogoff (2009).

34 See, for example Basel Committee on Banking Supervision (2010a), Basel Committee on Banking Supervision (2010b) and Haldane (2010).

35 See Basel Committee on Banking Supervision (2015e).

accordance with the earlier trend. For the countries included in the figure, the aggregate loss in GDP since the crisis amounts to more than SEK 700,000 billion (or USD 76 trillion). In many countries, unemployment also increased dramatically during the crisis and it has proven difficult to reduce it to previous levels. The prolonged nature of the crisis heightens the risk of those who are unemployed becoming so permanently, which further increases the long-term costs of the crisis both for society as a whole and for the individuals affected.

The development of GDP in Sweden in conjunction with the banking crisis in Figure 5 also appears clear. The red line shows the GDP outcome. The blue line shows the trend based on data from 1950-1989 and the yellow line the trend based on data from 1950-2007.³⁶



Note: The grey areas indicate the two financial crises.
 Sources: National Institute of Economic Research and Sveriges Riksbank

Figure 5 clearly shows that Sweden has gone through two bank crises: 1990-1994 and 2008-2011. During both crises, GDP fell sharply and the economy has not recovered sufficiently afterwards to compensate for the fall. Even if the trend, in Sweden’s case, is not lower than before, the post-crisis level is lower than indicated by previous trends. These crises thus brought about a permanent loss for the economy. It is also interesting to note that the two stock market crashes in 1987 and 2000 do not leave any noticeable impression on the GDP curve. It is only the two banking crises that create these large falls in GDP. No other events affect GDP anything like as much.

³⁶ The high economic growth in the 1950s and 1960s certainly affects the calculation of the trend in an upward direction, but, even if the calculations were started in 1970, similar results would be obtained, assuming an allowance can be made for more sophisticated calculations, such as with a linear-quadratic trend line. However, the important point here is not how the trend has been calculated, but that the data only shows two clear breaks in GDP outcome and both of these coincide with the two financial crises Sweden has experienced during this period.

IMPLICIT GOVERNMENT GUARANTEES

As certain banks are so important to the real economy, there have been several historical cases in which governments have been forced to employ various rescue measures in a crisis.³⁷ Allowing a loss-making bank to go bankrupt in a disorderly manner may sometimes lead to unacceptable economic costs. In times of financial crisis, governments therefore may be forced to implement rescue measures or bail-outs, that usually lead to the major loss-making banks surviving in some form or other. This creates what are known as implicit guarantees from the government to the major banks.

The fact that certain banks and market participants expect the government to support banks in a crisis reduces the major banks' incentive to build up their own buffers that would reduce the likelihood of a banking crisis. If the banks have large buffers in terms of extra capital and liquidity, it means that the expected return on equity, and thus shareholder dividend, risks being lower.³⁸ If the banks take greater risks, they can also increase revenue. The fact that the banks expect government rescue measures in times of crisis therefore intensifies the likelihood of them increasing their risk-taking, as they believe that the government will intervene and take some of the losses if there are problems. If all goes well, the bank (and its shareholders) share the profit. If there are credit losses, the government picks up the tab. This behaviour is normally referred to as a moral hazard problem. If any other type of company had been involved, the government would probably just have let it go bankrupt in the normal manner. Bankruptcy in such cases would have led to debt holders having to foot the bill. If debt holders know that they risk having to pay for losses if the company enters bankruptcy, this will give them an incentive to monitor the company's risks. As the consequences of a major bank entering bankruptcy can be so serious for the economy and market participants believe that the government may intervene with rescue measures, the disciplinary effect that lenders have on a normal company is weakened.

All in all, these four arguments mean that there is clear economic justification for the state to ensure that banks have sufficient capital and liquidity to reduce the risk of bank crises. If banks were entirely unregulated, their buffers would be smaller than economically optimal, given their key role in the financial system. All countries therefore place larger and more far-reaching regulations on their banks than on other companies. The question is how these regulations should be formulated and if they, for example, need to be tightened.

Why were the old regulations insufficient?³⁹

When the financial crisis broke out in 2007, the Basel Committee had just adopted the Basel II framework. Most of the Basel Committee's member countries had implemented the new rules, but they had not yet come into force everywhere. The United States, for example,

³⁷ See also Llewellyn (1999).

³⁸ According to Modigliani and Miller (1958), the cost of a company's funding is independent of the source of funding. However, in practice, tax differences and other factors mean that funding via equity capital is more expensive than funding via liabilities.

³⁹ This section is inspired by the Basel Committee on Banking Supervision (2015e).

had yet to implement them. As is clear from Figure 4, the global financial crisis was deep and costly for many countries. It was therefore obvious to leading decision-makers that the existing regulatory framework was insufficient and needed to be tightened.⁴⁰

There were a number of problems that Basel II did not address:

1. The banks' capital buffers were too small to be able to withstand the pressures that arose during the crisis.
2. Indebtedness was too high in the financial system and the banks' capital levels were inadequate to cover the risks arising due to this indebtedness.
3. Credit growth was too high and the pricing of risk too low.
4. Systemic and contagion risks turned out to be greater than had been believed. Many financial institutions were too dependent on each other and had far too similar exposures. So, when a bank encountered problems, these quickly spread to other banks, which created systemic problems.
5. When external credit rating agencies simultaneously reduced many banks' credit ratings, procyclical effects arose.⁴¹
6. The banks had inadequate liquidity buffers and, at the same time, took too high liquidity risks.
7. Many new financial instruments had become so complex that neither banks, market participants nor supervisory authorities realised the true extent of these risks.

All in all, these problems exacerbated the crisis and led to many market participants losing confidence in banks. In addition, distrust quickly spread to other parts of the financial sector and to the real economy. As we have seen in Figures 4 and 5, this led to considerable losses in economic activity and a sharp falls in GDP.

What are the greatest differences between the old and new regulations?

As a direct consequence of the global financial crisis, the Basel Committee agreed, in July 2009, on a modified regulatory framework for the trading book, which includes exposures stemming from securities a bank has and intends to trade in. This modified regulatory framework is normally referred to as **Basel 2.5**.⁴² The aim of Basel 2.5 was to quickly rectify some of the risks that had become clear during the global financial crisis, when the capital calculated to cover the exposures in trading book was not sufficient to cover the losses emanating from the trading book. The tighter regulations meant that banks had to retain more capital for securitisation and complex exposures in the trading book. Those banks that were allowed to use internal models were also supposed to calculate a stressed variant of Value at Risk (VaR), in which they assumed that market volatility was greater

40 See, for example, the G20 leaders' statements from the summit meeting in April 2009, G20 (2009).

41 Procyclical effects occur when regulations reinforce fluctuations in the financial economy, see further on page 80.

42 See Basel Committee on Banking Supervision (2009c).

than previously assumed. The aim was partly to reduce the risk that the banks would underestimate their capital requirement and partly to reduce procyclicality.

Basel 2.5 was just a partial solution, however, and the Basel Committee realised that more needed to be done. Consequently, the committee began working on a larger reform package that has come to be known as Basel III. The new regulatory framework for capital requirements was adopted in December 2010 with a minor adjustment in June 2011.⁴³ Among other objectives, the aim of the revised regulatory framework is to:

- increase the quality and quantity of banks' capital,
- increase the risk capture,
- increase the banks' resilience by introducing capital buffers,
- reduce procyclicality in the regulatory framework,
- reduce systemic risks,
- ensure that banks have a minimum level of liquid funds,
- limit the difference in maturity between banks' assets and liabilities,
- limit banks' indebtedness and reduce dependence on their own models,
- limit banks' large exposures to individual counterparties,
- strengthen the regulations for exposures in the trading book.

The new standards will be phased in successively until 2019, and by 2023, the new standards should be fully operationalised. In the section below, I present the different components of the revised framework one by one.

INCREASE THE QUALITY AND QUANTITY OF BANKS' CAPITAL,

Capital can, in principle, be divided into three components, common equity Tier 1 capital (CET1), other Tier 1 capital and Tier 2 capital. Common equity Tier 1 capital (CET1) consists mostly of equity capital and retained earnings, and is the type of capital that covers losses in the best and easiest way. If the bank makes losses, this is the capital that first bears these losses. In contrast, defining Tier 1 and Tier 2 capital is less straightforward. In principle, it could be said that these forms of capital are hybrid instruments, which is to say a mixture between equity and classic debt instruments. Other Tier 1 capital can for instance be non-redeemable, non-cumulative preferred stock, if these fulfil certain conditions. Tier 2 capital mostly consists of longer-term subordinated debt, subject to certain conditions. Such subordinated debt instruments have a lower priority than other debts and cover losses in bankruptcy before other liabilities do. If the bank makes losses, the common equity Tier 1 is first used to cover the losses. If this is not enough, the bank uses other Tier 1 capital and, if this is not enough and the bank defaults, Tier 2 capital is used to cover the losses. At least this was the plan.

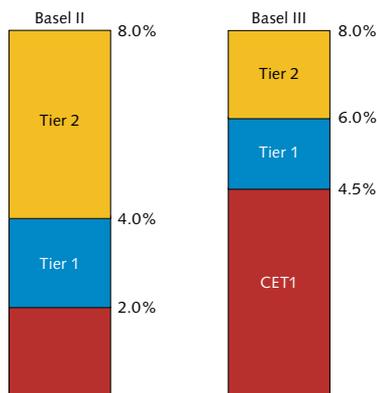
⁴³ See Basel Committee on Banking Supervision (2011a)

During the financial crisis, many banks in different countries experienced a common problem. Some types of capital that were assumed to be loss-bearing did not cover losses the way they were intended to. Common equity Tier 1 covers losses, but, in several countries, the government was forced to intervene and cover the losses, while the owners of the hybrid instruments (both other Tier 1 capital and Tier 2 capital), in many cases, emerged from the crisis unscathed. In order to be included in the capital adequacy calculations, **stricter rules** have therefore been introduced for these forms of hybrid capital. They must, for example, automatically be converted into equity capital if the capital adequacy falls too far.

Basel III also involves a tightening of the **level of capital**. Total capital can consist of CET1 capital, Tier 1 capital and Tier 2 capital. In Basel II, there was a requirement for the bank to have at least 8 per cent total capital in relation to the risk-weighted assets. At the same time, at least four per cent of the bank's risk-weighted assets had to be in the form of CET1 capital and other Tier 1 capital. Of the total capital requirement, at least half could therefore consist of Tier 2 capital. In addition, somewhat simplified, at least half of the Tier 1 capital had to consist of CET1 capital. In practice, the bank could thus manage with two per cent CET1 capital. Under Basel III, the capital requirement level was raised so that at least 4.5 per cent of the risk-weighted assets has to be CET1 capital and at least six per cent Tier 1 capital.

In Figure 6, I show the differences in requirements for the banks' minimum requirements according to Basel II and Basel III. It is clear that the banks need to have more CET1 capital (the best kind of capital) under Basel III than under Basel II.

Figure 6 – Minimum capital requirements under Basel II and Basel III



In addition to the minimum requirements, Basel III also includes capital buffer requirements. I will return to this issue later on. The capital buffers mean an additional de facto increase of the banks' capital requirements.

INCREASE THE RISK CAPTURE

Another change introduced by Basel III is that the banks now need to have capital to cover more risks. As I mentioned previously, Basel 2.5 contained tighter regulations with regard to capital adequacy for holdings of securitisation⁴⁴ and complex exposures in the trading book. In Basel III, capital adequacy requirements have also been strengthened for exposures outside the balance sheet and certain securitisations and resecuritisations⁴⁵ for banks that securitise their portfolio. A larger proportion of the counterparty risks are also covered. An example is the introduction of capital requirements for the risk that credit ratings of the counterparty will be changed, the so called Credit Valuation Adjustment (CVA), i.e. the risk that the bank makes a loss due to market changes caused by a downgrading of the credit quality of the bank's counterparty.

INCREASE THE BANKS' RESILIENCE BY INTRODUCING CAPITAL BUFFERS

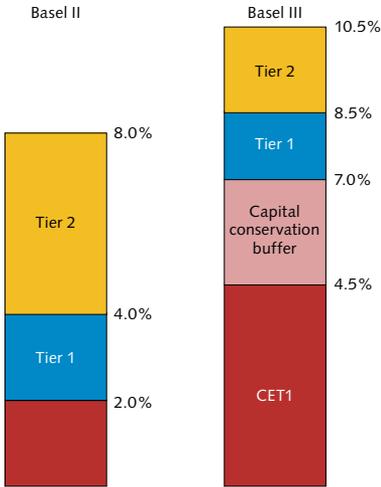
The global crisis proved that banks did not have adequate capital buffers above the minimum requirements. Furthermore, there were no harmonised requirements governing what would happen if the banks did not fulfil the requirements under Basel II. It was up to each individual country to specify the consequences. This meant that authorities sometimes submitted action plans too late and the banks were not quick enough to rectify a number of problems. In conjunction with the Basel III agreement, the Basel Committee took a first step towards specifying a common framework for what the consequences would be if a bank breaks the rules.

Basel III thus introduces a requirement that the banks are to have capital buffers over and above the minimum levels. The so-called capital conservation buffer amounts to 2.5 per cent of the risk-weighted assets and is added on top of the banks' minimum capital requirements (see Figure 7). In addition to the capital conservation buffer, Basel III also introduces a countercyclical buffer (see next section) and an extra buffer for globally systemically important banks (see section after that).

44 A securitisation means that the bank that has granted a number of loans restructures these loans and sells them to various investors.

45 A resecuritisation means that the bank restructures products that have already been securitised and securitises them again.

Figure 7. Capital requirements including the capital conservation buffer under Basel II and Basel III



All capital buffers must consist of CET1 capital. The three different buffers (the capital conservation buffer, the countercyclical capital buffer and the buffer for systemically-important banks) together form a joint total buffer. If the bank’s capital falls to a point where it fulfils the minimum requirements but not the requirement for the total buffer, the bank must retain part of its profits to build up capital. The bank cannot, in other words, use that part of the profit to distribute to shareholders or pay bonuses. The more the bank breaks the total buffer, the larger the proportion of the profit the bank must save and add to the capital.

REDUCE PROCYCLICALITY IN THE REGULATORY FRAMEWORK

The financial crisis also clearly showed that banks often react in a similar way. In good times, banks take on more risk and, in times of crisis, they often revalue exposures in the same way and see greater risks in them. There is a tendency for many banks to underestimate the risks in good times and overestimate them in bad times. In times of crisis, investors also become less willing to take on risk. This is usually termed increased risk aversion. All in all, these features may increase fluctuations in the economy. Therefore, the Basel Committee decided to introduce an explicit macroprudential dimension into Basel III. The traditional Basel regulatory framework focuses on the risks the banks take on and attempts to ensure that the banks have enough capital to cover these risks. The new macroprudential dimension of the regulatory framework instead focuses on the risks the bank *creates* for the wider economy. The greater the economic risks, the more capital the bank must have.

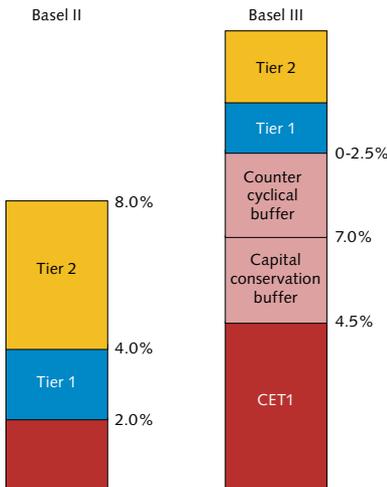
The Basel III agreement allows countries to introduce a countercyclical capital buffer. The idea is that the countercyclical buffer should build up banks’ resilience when times are good. When prices and lending are rising rapidly, the aggregate credit risks increase.

In this situation, the authorities can introduce requirements for the banks to increase their buffers. This increases the capital requirement and resilience among the banks. In addition, it may possibly contribute towards slowing down the upturn. When the credit cycle turns and credit losses grow, the idea is that the bank can use the buffer to cover losses and ensure that lending to the real sector does not fall too much. The idea is thus that the countercyclical buffer should vary over time, ensure that the banks have enough capital and counteract the cyclical tendencies in credit provisions by requiring banks to have more capital in good times and less in bad times.

As for other buffers, the countercyclical buffer must consist of CET1 capital and, in addition, there is a mandatory reciprocity. This means that if one bank is subject to the laws and supervision in Country A and the bank has an exposure to a counterparty in Country B, it is Country B's level for the countercyclical buffer that applies. It is therefore the country in which the exposure is located that determines how large the countercyclical buffer must be for that exposure and not the country in which the bank is located. The Basel III requirement means that Country A must recognise Country B's buffer up to a level of 2.5 per cent of the risk-weighted assets and apply it to its banks. The authorities in Country B may set a higher countercyclical buffer than 2.5 per cent and the authorities in Country A *may*, but are not obliged, to recognise these higher levels. The bank then calculates its total countercyclical buffer as a weighted average of its exposures to different countries with the countercyclical buffers that apply in these countries.⁴⁶

If the countercyclical buffer amounts to 2.5 per cent in all countries in which the bank is active, this means that the total buffer will be 2.5 per cent higher (see Figure 8).

Figure 8. Capital requirements including full countercyclical buffer under Basel II and Basel III



⁴⁶ Basel Committee on Banking Supervision (2011a) contains the regulatory framework itself while Basel Committee on Banking Supervision (2010d) contains further details on how banks are to calculate the countercyclical buffer.

Since most internationally active banks have exposures to many different countries and it is not particularly likely that the authorities in all these countries will simultaneously adopt a countercyclical buffer of 2.5 per cent, the effect on a bank will normally be much lower.

REDUCE SYSTEMIC RISKS

Another part of the package of macroprudential measures included in the Basel III agreement is tougher requirements for banks that generate the greatest systemic risks. Some banks are too large and systemically important to be allowed to fail. It is therefore important that they have larger buffers to reduce the likelihood of them failing. The Basel Committee has developed a model to estimate the size of the consequences if one of the world's largest banks fails. The idea is that if the consequences are significant, the likelihood of a bank failing must fall correspondingly so that the likelihood of failure times the consequence of failure is approximately the same for all banks.

About 30 banks in the world, including Nordea, have been designated as global systemically-important banks (G-SIBs). The Basel Committee has therefore decided that these banks should have an additional capital buffer of between 1 per cent and 2.5 per cent (potentially even more) of risk-weighted assets, in addition to their capital conservation buffer and any countercyclical buffer.⁴⁷ Just as for the other capital buffers, the Basel Committee has decided that the buffer should consist of CET1 capital.⁴⁸

In addition, the Basel Committee has drafted principles to guide countries that wish to nominate more banks as systemically important in each country, referred to as domestic systemically-important banks (D-SIBs).⁴⁹

ENSURE THAT BANKS HAVE A MINIMUM LEVEL OF LIQUID FUNDS

Another problem in the crisis was that banks did not have sufficient liquidity. The Basel Committee has therefore developed two liquidity requirements, a short-term requirement for a Liquidity Coverage Ratio (LCR) and a long-term requirement for a Net Stable Funding Ratio (NSFR).⁵⁰

The Liquidity Coverage Ratio (LCR) is aimed at reducing the risk that the bank encounters short-term liquidity problems. The idea is to ensure that banks have sufficient liquid assets to survive for a period of 30 days in a stressed scenario. The LCR is expressed as a ratio.

47 The Financial Stability Board (FSB) publishes the global list of systemically important banks in November every year. For the 2015 list, see Financial Stability Board (2015a).

48 The framework for global systemically important banks was adopted in November 2011, (see Basel Committee on Banking Supervision (2011b)) and updated in July 2013 (see Basel Committee on Banking Supervision (2013d)).

49 See Basel Committee on Banking Supervision (2012b).

50 Both the LCR and the NSFR were adopted in principle in December 2010 (see Basel Committee on Banking Supervision (2010c)). Fine-tunings and more detailed specifications of the LCR requirement were published in January 2013 (see Basel Committee on Banking Supervision (2013b)).

$$LCR = \frac{\textit{liquid assets}}{\textit{outflows during 30 days of stress} - \textit{inflows during 30 days of stress}}$$

The bank's liquid assets form the numerator. The denominator specifies the bank's estimated net outflow over a period of 30 days during the assumed liquidity stress, by taking expected outflows of liquid assets in stress over 30 days minus expected inflows of liquid assets in stress over 30 days. The requirement under the Basel regulatory framework is that the bank's LCR must be at least 100 per cent, which means that it must have liquid assets that are at least as large as the expected stressed net cash outflow over 30 days.

LIMIT THE DIFFERENCE IN MATURITY BETWEEN BANKS' ASSETS AND LIABILITIES

The other liquidity measure, the Net Stable Funding Ratio (NSFR), is aimed at what is usually called the banks' maturity transformation. In the section on the banks' liquidity risks on page 70, I explained that the banks have special liquidity risks, as the liability side on the balance sheet (which is to say mainly deposits and wholesale funding) is short-term and can rapidly disappear, while the asset side (which is to say mainly lending) is long-term, which means that the banks cannot demand it back at short notice. It could be said that the banks transform short-term borrowing into long-term lending. This maturity transformation is an important part of banking operations and serves a useful economic purpose. At the same time, it exposes banks to liquidity risks. The Basel Committee therefore assessed that this risk needed to be limited and introduced the Net Stable Funding Ratio (NSFR).

The NSFR is defined as the ratio between the bank's available stable funding and its required stable funding during a stressed scenario of one year.⁵¹

$$NSFR = \frac{\textit{available stable funding during one year}}{\textit{required stable funding during one year}}$$

Under the Basel regulatory framework, the banks must have an NSFR of at least 100 per cent. In simpler terms, banks must have sufficient stable funding 12 months ahead to cover its need for stable funding 12 months ahead.

LIMIT BANKS' INDEBTEDNESS AND REDUCE DEPENDENCE ON THEIR OWN MODELS

Another rule change in Basel III is the Basel Committee's decision to introduce a leverage ratio requirement.⁵² There are three main justifications for this requirement.

Firstly, it became obvious during the global financial crisis that certain banks did not have enough capital in relation to their total assets. Certain assets have low risk weights. Then only little capital is needed. However, during the crisis, some banks took on a very high

51 Refinements and more detailed specifications of the NSFR requirement were published in October 2014, see Basel Committee on Banking Supervision (2014d).

52 The leverage ratio requirement was first published in December 2010, see Basel Committee on Banking Supervision (2011a). Refinements to the exposure amount and a number of other clarifications were published in January 2014, see Basel Committee on Banking Supervision (2014a).

level of indebtedness. High indebtedness can be profitable for the bank, but also involves risks, not just for the bank but also from a more macroprudential perspective. As debt levels rise, the problems that need to be solved in a crisis also rise. Once the crisis has hit, the risk weights become virtually useless and it is the value of the assets that makes a difference.

Secondly, it is difficult to estimate the risk of certain assets. Often there is not enough data to estimate the risk in a sufficiently reliable way. Furthermore, in many cases banks' internal risk models are too complex to spot any weaknesses. The risk is therefore that the bank's model both has specification error and is based on too little data in order to correctly estimate the risks associated with various exposures. This is normally referred to as model risk.

Thirdly, banks must obtain permission from the supervisory authority to be able to use their own internal models to estimate the risk and thus the capital requirement of certain exposures. However, allowing banks to use internal models gives them incentives to underestimate their risks and thereby retain less capital than is economically desirable. Normally, it is more expensive for the bank to fund its operations with equity than with deposits or wholesale funding.⁵³ The incentive to estimate too low risk-weighted assets may undermine the bank's capital adequacy. As Martin Noréus, acting Director-General of Finansinspektionen noted in a speech: "At the same time, the banks have strong incentives to reduce the risk weights, to bring down the actual capital base, which ultimately increases the return on equity. The use of internal models gives the banks the opportunity to reduce their risk weights."⁵⁴

As a complement to the standard capital requirement, the Basel Committee has therefore decided to introduce a leverage ratio requirement. This requirement is not based on risk-weighted assets. Instead, the bank must have enough capital to cover total assets on the bank's balance sheet and certain off-balance sheet items.

$$\text{Leverage Ratio} = \frac{\textit{Tier 1 capital}}{\textit{total assets} + \textit{certain off balance sheet items}}$$

In January 2016, the Governors and Heads of Supervision (GHoS) decided that the leverage ratio requirement should be set at 3 per cent, but that the requirement should be set higher for the global systemically-important banks (G-SIBs).⁵⁵ The committee will determine in 2016 how much higher these requirements will be.

LIMIT BANKS' LARGE EXPOSURES TO INDIVIDUAL COUNTERPARTIES

Even before the crisis, most countries had introduced some form of limit on how much exposure banks would be permitted to have to individual counterparties or groups of

53 According to Modigliani and Miller (1958), the cost of a company's funding is independent of the source of funding. However, in practice, tax differences and other factors mean that funding via equity capital is more expensive than funding via liabilities.

54 See Noréus (2015).

55 See Basel Committee on Banking Supervision (2016a).

counterparties. There was no global regulatory framework for this, however, and the regulations varied from country to country.

In 2014, the Basel Committee therefore decided to introduce a harmonised regulatory framework for large exposures.⁵⁶ One assumption in the usual capital requirements is that a bank has a well-diversified portfolio of exposures. If the exposures become too large, the risk-weight system does not function as intended. It is also important that the individual exposures are not allowed to be so large as to jeopardise the bank's continued existence. Under the Basel Committee's regulatory framework, a bank is not allowed to have an exposure that exceeds 25 per cent of the bank's Tier 1 capital to an individual counterparty or group of connected clients. In this context, exposures to all companies in a group are, for example, counted as a group of connected clients, as a parent company often supports the subsidiaries when there are problems.

STRENGTHEN THE REGULATIONS FOR EXPOSURES IN THE TRADING BOOK

In 2007 and 2008, unease and volatility on the financial markets were high. It was then obvious that there were major weaknesses in how the banks were capitalising their market risks and exposures in the trading book. A number of acute measures were therefore decided upon in 2009 with the adoption of what is usually called Basel 2.5.⁵⁷ At the same time, the committee started a more overall review of the capital framework for market risk, which resulted in a decision at the start of 2016 on new standards for the trading book.⁵⁸

The new regulations, which are to be implemented into national legislations in January 2019, involve several changes. It will be more difficult for the banks to move exposures between the trading book and the banking book, making it more difficult for them to minimise capital adequacy by moving exposures to where capital adequacy is lowest. The banks will have to use a new model, expected shortfall, instead of Value at Risk (VaR) to estimate the risk in stressed situations. This means that greater consideration must be taken of extreme outcomes and the most unlikely events. The new regulations also take greater consideration of the effects of a deterioration of market liquidity. Subject to approval by the supervisor, the banks may use internal models for *parts* of their operations and need not use them for the entire trading book.

OTHER PROPOSALS

Following the global financial crisis, the Basel Committee and other policymakers have tightened other rules for the banks.

For example, the Basel Committee has harmonised and expanded the rules on what information the banks' are obliged to publish.⁵⁹ The purpose of these so-called **Pillar 3 requirements** is to make it easier for market participants to assess and compare different

⁵⁶ See Basel Committee on Banking Supervision (2014b).

⁵⁷ See Basel Committee on Banking Supervision (2009c).

⁵⁸ See Basel Committee on Banking Supervision (2016b).

⁵⁹ See Basel Committee on Banking Supervision (2015a).

banks, their capital, liquidity and risks. Work on developing the Pillar 3 requirements is still ongoing since all the rule changes and definitions have not yet been adopted, and the transparency requirements must be based on other regulations.

Furthermore, the Financial Stability Board (FSB)⁶⁰ agreed in November 2015⁶¹ on an additional, related and important regulatory framework, the introduction of rules concerning Total Loss-Absorbing Capacity (TLAC). The aim of this framework is to ensure that global systemically important banks do not only have sufficient capital but also debt instruments that can be written down or converted into equity if the bank encounters problems. Since these banks are systemically important, they cannot always fail without major negative economic consequences. This means, however, that those who have bought the banks' bonds have taken on less risk than in other companies. The implied guarantees are perceived as greatest for these banks, which means that there are expectations that the government will intervene and rescue the bank before the bondholders will need to cover the losses. This, in turn, means that the bondholders do not have the disciplining effect they should have on the bank to ensure that the bank's risk of default is limited. The idea of the TLAC is to ensure that the global systemically-important banks can continue to supply certain critical functions. It is also important to reinforce market discipline by stating in advance that some bondholders may need to bear losses. For example, the authorities may determine that the bonds are either written down, i.e. are given a lower value, or converted to capital, i.e. are allocated a greater risk if the bank becomes distressed. According to the TLAC requirement, banks must have this type of eligible bond, including total capital, amounting to at least 18 per cent of their risk-weighted assets, by 2022. In the same way as for the leverage ratio requirement, there is also a requirement that relates to total assets and off-balance sheet items. This TLAC minimum requirement is 6.75 per cent.

Agreeing globally on certain minimum requirements is not enough, however. It is also important for all countries to implement the regulatory frameworks in their national legislation. As I mentioned previously, the Basel Committee has therefore decided to evaluate how different countries have introduced the regulations into their legislation. These evaluations are performed by colleagues from other countries and a final report is published. This has put considerable pressure on countries to actually implement the rules in the same way, and hence increased the impact of the Basel Committee's agreements.

Another important area for the Basel Committee is promoting effective supervision of the rules. In September 2012, new revised core principles for effective banking supervision were adopted.⁶² These core principles of supervision are used by the IMF and the World Bank when they evaluate the financial systems of different countries and therefore have a bearing far beyond the Basel Committee's member countries. The Basel Committee has

60 The Financial Stability Board (FSB) is a member-driven organisation consisting of finance ministries, central banks and supervisory authorities mainly from G20 countries. The FSB's aim is to coordinate the work on developing and supporting the implementation of effective rules and effective supervision on an international level to promote global financial stability (see: www.fsb.org).

61 See Financial Stability Board (2015b).

62 See Basel Committee on Banking Supervision (2012a).

also drawn up principles for effective supervisory colleges⁶³, principles for effective risk-data aggregation and risk reporting,⁶⁴ guidelines for identifying and dealing with weak banks⁶⁵ and corporate governance principles for banks.⁶⁶

SUMMARY

In conclusion, Basel III has set clearer and stricter limits on how banks can pursue their operations. In addition to the specific limits set in the regulatory framework for large exposures, banks now need to find their optimal model for banking activities given four different quantitative restrictions:

- The risk-weighted capital requirement including the buffers that have been introduced,
- The leverage ratio requirement,
- The Liquidity Coverage Ratio (LCR), and
- The Net Stable Funding Ratio (NSFR)

The previous Basel II regulations only focused on the first of these measures. The Basel Committee's hope is that these more comprehensive rules will reduce the risk of financial crises in the future.

What remains to be done?

The regulations drawn up after the global financial crisis are not yet complete. A number of tasks remain.

One such task is to determine how large the **leverage ratio requirement** should be for the global systemically-important banks. The Basel Committee will establish this in 2016. In this context, the committee is also planning to determine how the Basel I floor should be replaced by a new floor. Instead of being based on Basel I, the intention is for the new floor to be based on the standardised methods for calculating credit risk and market risk. Exactly how this new floor will be designed and calibrated still remains to be decided.

In 2014 and 2015, the Basel Committee has also focused on analysing whether it should set stricter restrictions on the banks' internal models, by restricting the values of the parameters that the banks may estimate in their internal models for credit risk, such as PD, LGD and EAD. It is also possible that it will no longer be permitted to model certain types of exposure class using internal models. Instead, they would only be allowed to use standardised methods for these exposure classes. Exactly how these regulations will be designed is yet to be decided, but the Committee is expected to take a decision at the end of 2016.

63 See Basel Committee on Banking Supervision (2014c).

64 See Basel Committee on Banking Supervision (2013c).

65 See Basel Committee on Banking Supervision (2015b).

66 See Basel Committee on Banking Supervision (2015c).

Another issue under discussion in the Basel Committee is how banks' exposures to sovereigns and other public-sector entities should be managed. Today, the regulatory framework provides scope for supervisory authorities to in practice allow banks to use zero risk weights on their exposures to sovereigns and public-sector entities. Even in the regulatory framework for large exposures, there is an exemption for this type of exposure, which means that banks can have unlimited exposures to sovereigns and certain public-sector entities. As the global financial crisis clearly indicated that banks' government exposures were not risk-free, the Basel Committee has decided to review whether and how the regulatory framework needs to be changed. This review is performed in a careful, gradual and holistic manner. It is also unclear exactly when the review will be finished.

The Basel Committee is also currently drafting new regulations for the capital adequacy of operational risks. This will involve a total review of the calculation methods for these risks. The Basel Committee will probably not permit banks to use internal models for these risks. All banks will therefore be forced to use standardised approaches for the capital adequacy of their operational risks. The Basel Committee has not decided on these models yet, but plans to make a decision on the new regulations in 2016.

Another current issue concerns the principles for estimating interest risk in the banking book. Interest risk attempts to capture what will happen to the bank's earnings, assets, liabilities and risks if there is a change in the general level of interest rates. The Basel Committee has previously drawn up principles for how interest risk is to be assessed, but has left it up to national authorities to specify the details in the requirements.⁶⁷ At present, a review is being made of these principles, to ensure that the banks have sufficient capital adequacy for this risk and that the differences in how different countries apply the regulations are being reduced. The Basel Committee plans to take a decision on the new principles in 2016.

Finally, the Basel Committee will evaluate the effects of the new regulatory framework. Among other things, this means that the committee will provide assistance so that all countries implement the rules as intended. An important part of this is the country-specific evaluations. As the new framework is being phased in, these evaluations will also have to be followed up. Furthermore, the committee will have to examine whether the changes to the standards have had the desired effect.

What do the new regulations mean for Sweden?

Finally, it may be of interest to briefly highlight what these new regulatory frameworks mean for Sweden and for Swedish banks.

Firstly, the global financial crisis made it clear just how dependent Sweden is on the rest of the world. From a strictly Swedish perspective, it is therefore important that other countries adhere at least to the minimum standards set by the Basel Committee. This would limit the risk that financial stability problems emerge in other countries and then spill over

⁶⁷ See Basel Committee on Banking Supervision (2004b).

to Sweden and create problems here. The global financial crisis of 2007-2011 had a great impact on Sweden even if most of the problems did not originate in Sweden.

Secondly, it is important to note that the regulatory frameworks are minimum standards and the result of compromise. This means that the rules are not always ideal for all countries. Countries with special risks may need to deviate from them and introduce stricter regulations. We must therefore make our own assessment of what is needed to restrict the risks in the Swedish banking system. Sweden is a small, open economy with extensive foreign trade and large financial flows across its borders. This benefits welfare. However, it also means that the Swedish economy is more vulnerable to risks than are the economies of many other countries.

All in all, it is extremely important that we follow the international rules. To safeguard the competitiveness of Swedish banks and, ultimately, of the Swedish economy, there must be no doubt that Swedish authorities and banks are complying with the international regulatory standards.

There are four main reasons why major Swedish banks need more capital and better liquidity than banks in other countries.⁶⁸

Firstly, as clearly illustrated in Figure 2, the major Swedish banks are highly dependent on funding from abroad. This means that confidence among foreign investors is particularly important. If foreign investors' confidence in the major Swedish banks were to weaken and they were to withdraw or heavily reduce their funding, it would have rapid and far-reaching consequences for the Swedish banking system. It is therefore important that the major Swedish banks have sufficient capital and liquidity to maintain this confidence.

Secondly, Swedish banks are large in relation to the Swedish economy, with total assets equal to about 400 per cent of Sweden's total GDP. This means that any problems in the major Swedish banks would have a major impact on the Swedish economy. The same arguments used by the Basel Committee when it justified the higher capital requirements for systemically-important banks can be used in a Swedish context.

Thirdly, the Swedish banking market is concentrated. This means that the major Swedish banks have large exposures to one another, primarily through interbank loans and holdings of one another's covered bonds. Risks arising in a single bank can therefore easily spread to the other major banks.

Fourthly, and as a consequence of the three above reasons, market participants, banks and investors may perceive that the major Swedish banks have an implicit public sector guarantee. This also means that they can obtain cheaper funding than would otherwise have been the case. The implicit public sector guarantee thus risks leading to an incorrect pricing of credit. This can, in turn, lead to excessively high growth in credit and to the build-up of imbalances in the financial system. Furthermore, the implicit commitment for the public sector will be sizable as the major banks are so large. It is therefore even more important to have substantial and effective capital and liquidity buffers.

68 See Sveriges Riksbank, (2011).

It can certainly also be argued that the major Swedish banks have low risks and perhaps do not need so much more capital than banks in other countries. There are two arguments. First, the Swedish banks have historically had low loan losses. Second, Swedish banks have a large proportion of low-risk mortgage loans on their balance sheets. One problem with the first argument is that historical losses over a 30-40 year period, which is a normal timespan for the banks' internal models, may perhaps not provide a sufficient basis to estimate risks that seldom arise. Mortgage problems in countries such as Denmark, Ireland, the Netherlands and the United States have not always occurred that frequently. It is therefore possible that Swedish banks are underestimating the risks. One problem with the second argument is that loan losses emanating from mortgages are often correlated. If – and it must be emphasised that this is an *if* – Sweden experiences a significant fall in housing prices, this can reasonably be expected to impact a large number of mortgages at the same time. This could create significant economic problems, even if homeowners continue to repay their mortgages and therefore do not create direct loan losses for the banks. It is instead more likely that consumers will cut back on their consumption, which would create greater risks in the banks' corporate lending and for the real economy as a whole. Given the high correlation, such effects can be significant.

THE RIKSBANK'S RECOMMENDATIONS

All in all, the Riksbank has therefore assessed that the special circumstances that characterise the Swedish banks and the Swedish economy justify the introduction of stricter requirements for the Swedish banks than the international minimum regulations. Consequently, in its financial stability reports, the Riksbank has introduced a number of recommendations.⁶⁹ Some of the most important of these recommendations are that the four major banks should:

- have a risk-weighted capital requirement of at least 12 per cent (including capital conservation buffer and buffer for systemically-important institutions),
- fulfil the LCR not only in total but also separately in EUR and USD,⁷⁰
- fulfil the NSFR as soon as possible,
- have a leverage ratio of at least 5 per cent.

All this is aimed at promoting financial stability and reducing the risk of problems similar to those that affected Sweden during the two financial crises in 1990-1994 and 2007-2011, which entailed major substantial economic costs and which cost every citizen in Sweden many thousands of kronor.

⁶⁹ See Sveriges Riksbank (2015b).

⁷⁰ The Riksbank also wants the banks to have an LCR of at least 60 in Swedish kronor (SEK).

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