



Special topics

The business cycle and regulations for banks

The banks' results are strongly dependent on economic fluctuations. This is only partly taken into account in the regulations governing how banking operations should be pursued. The Basel Committee on Banking Supervision is currently working on a new bank capital adequacy framework for banks.³⁵ This section discusses how the cyclical fluctuations in the banks' income, together with the new regulations, may affect the banks' capital adequacy requirement and credit granting. In addition, there is discussion of a special means of adapting accounting to incorporate the business cycle influence through 'dynamic provisioning'.

THE NEW CAPITAL ADEQUACY REGULATIONS

In June 1999 the Basel Committee on Banking Supervision issued a consultative paper containing proposals for a new bank capital adequacy framework. Following contributions from various consultations (primarily international players in the field of finance) and further processing by the Basel Committee, the proposals have been defined in detail. In January 2001 the detailed proposal was launched on a second round of consultations.³⁶

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The capital adequacy regulations entail that the capital adequacy ratio, i.e. the capital base in proportion to risk-weighted assets, should be at least 8 per cent. According to the current regulations the risk weights of the assets are determined by simple standards. The idea behind the new regulations is that the risk weights will better reflect the credit risk, i.e. the risk that a borrower will be unable to meet the commitments made.

As holding capital entails a cost to the lending bank, the bank will be more scrupulous in taking into account the relationship be-

³⁵ The Basel Committee on Banking Supervision was founded in 1975 by the central bank governors in the G10 countries. The Committee consists of representatives from the central banks and supervisory authorities in Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Sweden, Switzerland, the UK and the USA. The Committee has its permanent secretariat at the Bank for International Settlements (BIS) in Basel.

³⁶ See *A New Capital Adequacy Framework* (1999 BIS Publication No. 50) and *Consultative Document: Overview of the new Basel Accord* (2000, Basel Committee on Banking Supervision). For a description of the principles behind the proposal, see also *Towards new national and international banking regulations* by Göran Lind and Johan Molin in *Sveriges Riksbank Quarterly Review* 1999:3.



tween the risk of an exposure and the income it provides. There will also be a greater chance that increased risk will be reflected in the bank's pricing. This does not mean that banks will be prevented from taking risks, but that they will have a further incentive to make a thorough assessment of the risks and relate them to the expected yield.

The Basel Committee's proposal states three methods for calculating the capital adequacy requirement for credit risk: a standard method, which is to some extent based on external credit assessments made by credit rating institutes, and two internal-ratings based approaches – one "foundation approach" and one "advanced approach". An exposure's credit rating should in principle be updated regularly, whether the rating is external or internal.

However, the difficulty lies in finding methods for risk assessment that are sufficiently forward-looking. The available loss data is often restricted to a certain number of years back in time. This means that it seldom takes into account several economic cycles. In addition, the forecast horizon is often short term. There is thus a risk that future economic trends are not sufficiently taken into account, and that the methods used as a basis for awarding credit ratings thus underestimate future credit risks during times of economic prosperity and exaggerate them in less prosperous times.

When using credit risk evaluation methods that are not sufficiently forward looking, there is a risk that the credit ratings will not be changed until the new phase in the economic cycle is a fact. The new capital adequacy regulations could mean that the banks' capital adequacy requirements varied substantially during economic fluctuations.

Even under today's regulations a bank's capital adequacy ratio may decline during a weaker economic climate. This is because, if the result is sufficiently sensitive to economic fluctuations, a loss will arise that reduces capital. Thus, the *numerator* in the ratio between the capital base and risk-weighted assets, i.e. the capital adequacy ratio, also decreases.

The new regulations may reinforce this effect on the capital adequacy ratio, because the *denominator* is also sensitive to economic fluctuations. During an economic slowdown there is an increased risk that the credit rating for a given asset will decline, which may lead to an increase in the risk weight of the asset. This means that a bank with a given asset portfolio may have a lower capital adequacy ratio in total during a weaker economic climate than during a strong economic climate. There is thus a risk that during an economic slowdown the bank might find itself in a situation where it was unable to fulfil its capital adequacy requirement of 8 per cent. Banks can normally improve their capital adequacy ratio by, for instance, selling assets, withdrawing credit or increasing their own capital. However, it may be difficult for a bank to implement such measures during a weak economic climate. Borrowers are often unable to pay back credit during an economic slowdown. Taking measures aimed at withdrawing a loan risk causing the borrower to declare bankruptcy instead. It may also be difficult to obtain new capital through a new share issue, particularly if the bank has a profitability problem.



If several banks simultaneously face the problems described above, this could make an economic slowdown more severe and more prolonged. This is because the total supply of credit may decline if the capital adequacy requirement sets limits for the banks' credit granting.

A credit crunch tends to arise during a phase in the economic cycle where the economy needs stimulation.

This type of credit crunch tends to arise during a phase in the economic cycle where the economy needs stimulation. The phenomenon is usually referred to as the capital adequacy regulations' *procyclicality effect*.

The build-up of imbalances often occurs during times of good economic growth. If the credit risk is underestimated during a strong economic climate, it is possible that the bank's capital adequacy ratio does not correspond to the risks built up and that it wrongly appears to be satisfactory. During a time of economic growth, the capital adequacy requirement is low, while good results build up the bank's equity capital. This means that the capital adequacy requirement does not comprise any restriction for granting credit and there is thus a large supply of credit. In the same way as an economic slowdown can be reinforced if many banks are simultaneously affected by a higher capital adequacy requirement, a lower capital adequacy requirement can contribute to overheating during a period of strong economic growth.

There are thus elements in the new capital adequacy regulations that could reinforce the prevailing economic phase. However, the strength of these elements should not be exaggerated:

Firstly, the regulations on capital adequacy ratios reinforce the incentives for more healthy risk taking by the banks, which should have an overall effect of increasing stability in the financial system.

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Thirdly, the new capital adequacy regulations also provide some opportunities to deal with the above-mentioned procyclicality problems, primarily through the qualitative supervisory process that comprises the second pillar in the proposal. The supervisory authorities are hereby expected to evaluate the banks' capital requirements in relation to their risks, and if necessary to intervene. The Basel Committee proposal also gives the supervisory authority the opportunity to raise the capital adequacy requirement for an individual bank. This opportunity could be used, for instance, to adapt the capital adequacy requirements with regard to individual banks' sensitivity to economic developments. However, it should be pointed out that

such use of the second pillar has not yet been analysed and if it were used in this way, other issues might arise.

An additional means of alleviating the problems could be to adapt the reporting regulations for banks, so that the cyclical effect on the banks' results is reduced. The next section discusses a method that could be used for this – dynamic provisioning.

DYNAMIC PROVISIONING

The idea of dynamic provisioning is based on the principle that both income and expenditure should be reported as they arise. In addition to its current expenditure, the bank takes into account two factors when pricing a loan. Firstly, the bank wants to be paid for the *expected loss*, i.e. what it knows from experience that it loses on average on this particular type of loan. To compensate itself for the expected loss, the bank includes an "insurance premium" in the lending rate it charges. Secondly, the bank wants to be paid for the risk that the loss may be even greater than expected. The price of the loan therefore also contains a "risk premium".

Both the insurance premium and the risk premium are thus components in the interest income generated by the loan which is booked in the bank's profit and loss account during the duration of the loan. On the other hand, the costs connected with the two premium incomes are reported in different ways. The bank is obliged to allocate capital for unexpected losses, i.e. in principle corresponding to the risk premium, as soon as the risk arises. However, it does not need to allocate any reserve corresponding to the insurance premium until the cost has actually materialised.³⁷ It is because the materialisation – in the form of bankruptcies and difficulties in meeting payments of this latent cost – tends to follow a strong cyclical trend that credit losses and thus the banks' results covary strongly with the economic cycle.

Assuming that the bank has allocated the premium income generated during periods of good economic growth, the cyclicity of a bank's profitability should not comprise a problem. In this case the capital, which then consists of both insurance premiums and risk premiums, will grow during times of good economic conditions and decline during less favourable periods when it is used as a buffer – the bank's capital will in this case show cyclical variation. However, there is a risk that the insurance premium income from prosperous periods has not been deposited, but instead transferred to shareholders in the form of dividends or buy-backs.³⁸

One possible solution would be to allow the bank to make a provision equivalent to the insurance premium applied when pricing the loan as soon as the loan is issued.

37 According to the current practice, the bank makes a reserve when the loss has been established or is judged on reliable grounds to be very probable.

38 There are a number of possible explanations for this. These include *moral hazard* (the banks are counting on receiving support from the authorities in the event of a crisis), shortcomings in the banks' *corporate governance* (the bank management's thinking is short-term, concentrating on current profitability with an eye to bonus programmes, golden parachutes, etc. rather than seeing the result in a longer-term perspective), effects of certain *signalling behaviour* (the bank chooses not to report problems in the credit stock until it is less "harmful" to do so, which is when other banks are also experiencing problems).



If the banks have not set aside capital corresponding to the insurance premium income, this means that they will be forced to use the capital originally set aside for unexpected losses to cover credit losses that were expected, in a statistical sense. This means that the earlier discussed problems arise with regard to meeting the capital adequacy requirements.

One possible solution would be to allow the bank to make a provision equivalent to the insurance premium applied when pricing the loan as soon as the loan is issued. This type of *dynamic reserve* would enable the bank to bear the cost connected with the premium when it arises instead of when it might materialise.³⁹

Spain is one of a small number of countries that has recently begun to apply dynamic provisioning in practice. Spanish banks have been obliged for one year now to take into account the latent bankruptcy cost in their loan portfolio when allocating reserves. This part of the credit risk is covered by what is known as a *statistical reserve*. The individual bank's own credit loss history in different loan segments is used to estimate the average level of credit loss over time in the respective loan segment.⁴⁰ The statistical reserve can then be calculated on the basis of these estimates and the current composition of the loan portfolio. If (probably during an economic boom) the statistical reserve exceeds the reserve made for ascertained and likely losses, the difference is allocated to a special fund, the "statistical" fund. If the opposite case applies (probably during an economic recession), the bank can utilise the fund to a corresponding degree to reduce the credit loss reserve in its results. The consequence of this will be that Spanish banks, all else being equal, will report a more even development in credit losses and profits over time than other banks.

Dynamic provisioning is thus an accounting method enabling the banks to periodise the latent cost in their loan portfolios. This affects the results reported by the banks and thus also their opportunities to pay out dividends to shareholders. In Spain there are two main motives behind the new system.

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For one thing, it makes the latent credit cost clear right from the start, which adds a more forward-looking dimension to the traditionally more reactive system. This information can be important for both the bank's own management and for external analysts assessing the future development of the bank. *For another thing*, it reduces the cyclicity in the banks' results, which should reduce the risk of more banks being affected by problems at the same time.

Another important aspect of dynamic provisioning is how it should be treated in terms of taxation. If the dynamic reserve were not

³⁹ The reserves are "dynamic" in the sense that they distribute the latent credit cost over the entire duration of the loan, unlike the current "static" reserves not made until the specific point in time when the credit cost materialises.

⁴⁰ The database must cover at least one entire economic cycle and be approved by a supervisory authority.



taxed, it would provide an incentive for the banks to make reserves for the latent cost in their loan portfolios at the earliest possible stage. The result would be a slightly lower taxable capital in prosperous times and a slightly higher taxable capital in poorer times. The disadvantage of this system is that it could give the bank too many opportunities for manipulating results and tax planning, which is the reason why the tax authorities have generally been critical of dynamic provisioning. However, this potential disadvantage could be reduced considerably *both* by a supervisory authority having to approve the dynamic provisions made for each period, *and* by setting a ceiling for the total statistical fund.

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The current method for allocating reserves tends to distort the picture of the banks' actual profitability over time – the result appears to be more cyclical than it actually is. This can lead to an overestimation of the profits during prosperous times as well as the quality of the credit portfolio, which can in turn lead to a failure to make necessary allocations or to problems being detected unnecessarily late. In the same way, there is a risk during poorer times that the banking sector will be weakened and intensify a weaker economic climate. Under these conditions, dynamic provisioning would have a stabilising effect on the banks' results and capital and thereby also on the finance sector as a whole.

Increased transparency is probably an important complement to clarify the latent cost of the loan portfolio. Better accounting of the loan portfolio's components, as well as the credit risks and market risks attached to these is thus fundamentally desirable. The third pillar in the Basel Committee's proposal for new capital adequacy regulations contains relatively comprehensive requirements for public accounting of the banks' risks, risk assessment and risk management. However, the reporting is based on earlier experiences and not on forecasts for the future. If the information is sufficiently detailed, market analysts and authorities ought to be able to assess the risks in the light of current (e.g. economic) developments nevertheless.

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The Riksbank's summarised assessment is that the fundamental principal of the Basel regulations of relating the capital adequacy requirement as far as possible to the underlying risks is sound and contributes to financial stability. However, the proposal for new capital adequacy regulations contains certain mechanisms, which could strengthen the cyclical effects on the banking sector and the procyclical influence that the banking sector in turn risks having on the national economy. It is possible that these problems could be partially dealt with through the framework of the second pillar in the



Basel Committee's proposal, namely the supervisory review process. This ought perhaps to be complemented by allowing dynamic provisioning, i.e. by consolidating certain income from credit granting during prosperous times to cover credit losses during poorer times. Measures to increase transparency in the banks' exposures should be considered in combination with the dynamic provisioning.

Operational incidents in the banking system – two examples

The Swedish banks, in common with society as a whole, are becoming increasingly dependent on computer and communication systems. This means that software problems can have serious consequences not only for individual banks, but also for the payment system as a whole. Minor interruptions in computer systems occur almost daily at the banks. During the past six months, the Riksbank and Nordbanken have also suffered two serious, prolonged disruptions. Below follows a description of the two incidents, followed by a discussion of the consequences for the payment system and the systemic risks that similar incidents could entail.

THE RIKSBANK

In October 2000, the Riksbank's computer system for settlement of large payments between banks, RIX, suffered a serious disruption. A number of euro payments were sent twice, which led to incorrect bookkeeping. The Swedish banks therefore did not know their actual position in SEK at the end of the day and were unable to effectively balance surpluses and deficits between themselves. The fault was not detected until two days later, and was connected with the communication system linking the banks to the RIX system. It took a further three days to correct the fault and test the new solution.

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NORDBANKEN

At the turn of the year, Nordbanken suffered disruptions to its computer system on several occasions. The problems, which started with the first computer breakdown in the middle of the post-Christmas retail sales period, were not resolved until three days into the new year. The effects of the disruptions were particularly extensive as the number of transactions is always much higher than normal around the New Year holiday. The fact that the bank's computer system could be made operational part of the time prevented what could otherwise have been a serious situation.

The problems could be traced to software that had been changed during the Christmas week. The situation was made worse by faults in the software for restarting the computer system, which had not