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# Bank capital standards: the new Basel Accord

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*The 1988 Basel Accord was a major milestone in the history of bank regulation, setting capital standards for most significant banks worldwide—it has now been adopted by more than 100 countries. After two years of deliberation, the Basel Committee on Banking Supervision has set out far-reaching proposals for revising the original Accord to align the minimum capital requirements more closely with the actual risks faced by banks.*

On 16 January 2001 the Basel Committee released a consultation package setting out the details of the new Accord.<sup>(1)</sup> Comments are requested by the end of May and the Committee is expecting to release the final version of the Accord by end-2001 for implementation in 2004. A parallel consultative process is also operating at the EU level. A directive to implement the Basel proposals in the EU, which will cover both banks and investment firms, is also due to take effect from 2004.

The 1988 Accord was based on broad credit risk requirements, although it was amended in 1996 to introduce trading-book requirements as well. The proposed new Accord has three pillars: Pillar 1 will set new capital requirements for credit risk and an operational risk charge; Pillar 2 will require supervisors to take action if a bank's risk profile is high relative to capital held; and Pillar 3 will require greater disclosure from banks than hitherto to enhance market discipline (see the box on pages 56–57, which sets out the details of the new proposals).

The new credit risk requirements will be much more closely tied to the riskiness of particular exposures. In order to set such risk-based requirements the Committee had to consider a wide range of issues regarding the determinants of credit risk. This article sets out the background to the proposed changes and some of the issues that arise.

## Background

The 1988 Accord represented a revolutionary approach to setting bank capital—an agreement among the

Basel Committee member countries that their internationally active banks would at a minimum carry capital equivalent to 8% of risk-weighted assets (with the Committee setting broad classes of risk weights). The agreement was made against a background of concerns about a decline in capital held by banks, exacerbated by the expansion of off balance sheet activity, and worries that banks from some jurisdictions were seeking a short-term competitive advantage in some markets by maintaining too low a level of capital.

The introduction of the Accord seems to have led to some rebuilding of capital by the banks in the G10, but over time the broad nature of the risk categories created strains.<sup>(2)</sup> The Accord differentiates between exposures using general categories based on the type of loan—exposures to sovereigns (split into OECD and non-OECD), exposures to banks (split into OECD and non-OECD, with the latter split into less than one year and more than one year), retail mortgages, and other private sector exposures. Little allowance is made for collateral beyond cash, government securities and bank guarantees. The broad categories reflected the state of systems in banks at that time. But during the 1990s, banks started to develop more sophisticated systems to differentiate between the riskiness of various parts of the portfolio to improve pricing and the allocation of economic capital. These systems highlighted the discrepancy between required capital and economic capital for some exposures, creating an incentive to sell some loans. The chart below sets out a risk measure, the value at risk (VaR) over a one-year

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(1) Basel Committee on Banking Supervision (2001). The Bank of England and Financial Services Authority jointly represent the United Kingdom on the Basel Committee.

(2) Jones (2000).

## The main elements of the new Accord

### Pillar 1—minimum capital requirements

#### (i) Credit risk

Two approaches are proposed for the new Accord: the standardised approach and the internal ratings based approach (IRB); and within the IRB there will be a foundation approach and an advanced approach—the latter will give more scope to banks to set elements of the capital charges.

#### The standardised approach

Under the standardised approach banks will slot assets into weighting bands according to ratings from eligible rating agencies (ie recognised by national supervisors in accordance with specified criteria). The bands are as follows:

Per cent

	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to BB-	B+ to B-	Below B-	Unrated
Sovereigns	0	20	50	100	100	150	100
Banks 1	20	50	100	100	100	150	100
Banks 2							
< 3 months	20	20	20	50	50	150	20
> 3 months	20	50	50	100	100	150	50
Corporates	20	50	100	100	150	150	100

Jurisdictions will choose which of the two possible approaches for slotting interbank exposures their banks will use. Under option 1, loans to banks will be slotted according to the rating of their sovereign; under option 2, according to the bank's own rating. For the latter approach, exposures of less than three months will receive preferential treatment.

Exposures to borrowers without a credit rating will be placed in an unrated band that will carry a 100% weight (ie 8% capital charge), but regulators are requested to review the default experience of the particular market (and individual bank) to decide whether this is sufficient. Undrawn facilities to corporates of less than one year, which currently carry a zero weight, will be weighted at 20%.

There is much greater allowance for credit risk mitigation than currently—both in the form of guarantees and recognition of securities as collateral. Currently only cash and government securities are recognised, but it is proposed that securities rated BB- and above issued by a sovereign or public sector entity should also be recognised, as well as other securities rated BBB- and above, equities in a main index or listed on a recognised investment exchange, and gold. 'Haircuts' will be applied to the market value of collateral in order to reflect potential price

volatility, which may reduce the value of collateral taken. A weight will be applied to the collateralised exposure to protect against residual risks associated with the ability to realise the collateral.

#### Internal ratings based (IRB) approach

Under the IRB approach, categorisation of exposures will depend on the banks' internal risk assessments. If a bank has had its systems for assessing the default probability of borrowers recognised by its supervisor and has had such a system in place for at least three years, it will be able to use its own ratings to slot loans in probability-of-default (PD) bands. The bank will be able to choose as many bands as it wishes, with the capital requirement for each band set by the Committee according to a formula. A loss-given-default factor (LGD) is applied to produce the actual capital charge, reflecting the likelihood of recoveries (given seniority of the exposure and the type of security). For unsecured exposures the LGD is set at 50%. The following table compares the capital requirements under the current Accord, the standard approach, and the IRB foundation for senior unsecured corporate exposures.

Per cent

	PD	Current capital	Standard approach	IRB foundation
AAA (a)	0.03	8	1.6	1.13
AA (a)	0.03	8	1.6	1.13
A	0.03	8	4.0	1.13
BBB	0.20	8	8.0	3.61
BB	1.40	8	8.0	12.35
B	6.60	8	12.0	30.96
CCC	15.00	8	12.0	47.04

(a) Floor PD set by the Committee of 0.03.

Under the foundation IRB approach, commercial and residential real estate are recognised as collateral for commercial loans as well as the financial collateral recognised under the standard approach. The LGD factors are set by the Committee. Under an advanced approach, banks will be able to recognise any form of collateral and set their own LGD factors. They will, however, have to convince their supervisors that they have adequate systems.

For the first two years after the implementation of the new Accord, the credit risk requirement under the advanced approach cannot be less than 90% of that required under the foundation IRB for the same book. After two years, the Committee will review the overall working of the advanced approach.

The Basel IRB proposals include a 'granularity' scaling factor that will generate higher capital requirements for books that are more concentrated than average, and lower ones for less concentrated books.

The proposals for the treatment of retail loan books are a little different. It is proposed that all banks in the IRB approach will set the LGD for retail as well as the PD (this is because many banks assess retail in terms of expected loss (ie  $PD \times \text{expected LGD}$ )), making it more difficult to disentangle the two. Risks on retail portfolios appear to be substantially lower than corporate and the Committee is currently proposing that, for any PD/LGD combination, the weights would be half those for corporates.

In both the standardised and IRB approaches, there will also be a more fine-tuned approach to securitisation, to reflect the extent to which a bank securitising loans has retained any risk.

## (ii) Operational risk

Three different approaches are being considered for setting the operational risk charge. First, a basic indicator approach calibrated to deliver a charge equivalent to around 20% of total capital. The indicator being considered is gross income, with a charge equal to 30% of the annual amount. Second, a standardised approach where different risk indicators will be assigned to each business line. For example, for retail banking it might be average assets, and for fund management assets-under-management, and so on. The capital requirement for each business line will be a percentage of the risk indicator set by the Committee according to an assessment of the riskiness of that business line across the industry. The total operational risk requirement for a bank will be the aggregate of the requirements for each business line. In the third approach, banks will assess the expected losses for operational risk for each risk type (eg IT, fraud or legal risk) in each business line by estimating, from their own data, the likelihood of loss and its severity. As in the IRB approach for credit risk, a capital requirement to cover unexpected losses needs to be aligned with each expected loss.

## (iii) Total minimum capital

The total minimum capital requirement will be the sum of the requirements for credit risk, operational risk and the current trading-book capital charge. The Basel capital requirement will still be expressed as an 8% risk-asset ratio but the actual quantum of capital a bank will have to hold will depend on the riskiness of its particular book.

## Pillar 2—supervisory approach

The supervisory review is based on four interlocking principles. First, banks are required to have a process for assessing their capital requirements in relation to their individual risk profile. They should go beyond the scope of the Pillar 1 minimum requirements to consider risk concentrations, areas of risk without a

specific capital charge such as interest rate risk in the banking book, and the appropriate level of capital to meet their particular strategic needs. Second, this process will be evaluated by supervisors, who will take action if they are not happy with any aspect of the bank's internal process. Third, banks are expected to operate with capital above the Pillar 1 minimum, both to reflect their specific profile and provide a cushion, and, if necessary, supervisors may use their powers to enforce this. Fourth, supervisors should intervene at an early stage to prevent capital from falling below the level required to support the bank's risk characteristics.

## Pillar 3—disclosure

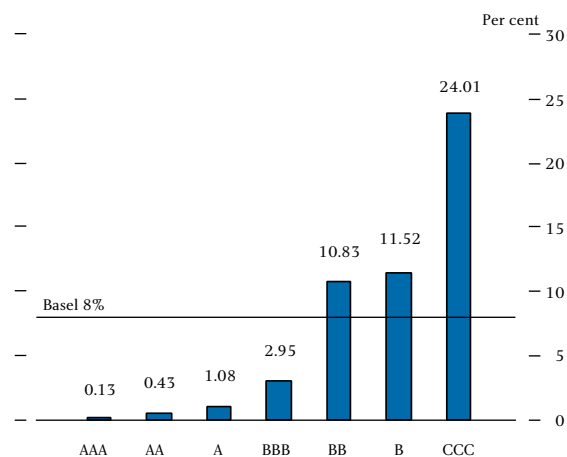
The Accord will set out core and supplementary disclosures that all banks should meet and where the supervisors should take action to address non-compliance. The difference between core and supplementary is that banks have more leeway not to make the supplementary disclosures if they are not relevant to their actual activities or if they relate to non-material areas. These disclosures will cover:

- *application* of the Accord to entities within a banking group—ie consolidation;
- *risk exposure and assessment*—a bank's profile in credit risk (eg the maturity distribution of exposures and amount of past due loans etc), market risk (eg the value at risk for different trading portfolios and the characteristics of any internal models used), operational risk (eg losses due to inadequate systems) and interest rate risk (eg the increase or decrease of economic value which would be caused by an unexpected interest rate shock);
- *capital*—the constituent parts of a bank's regulatory capital, including use of innovative Tier 1 instruments; and
- *capital adequacy*—for example, the amount of capital required for credit risk, market risk and operational risk, and the required capital as a percentage of a bank's total capital.

Under Pillar 3, banks that use internal methods for setting the Pillar 1 capital charges for credit or operational risk will be required as a pre-condition to disclose information on the nature of the procedures used. In addition, quantitative information will be required, such as the percentage of exposures covered by the approach and the distribution of exposures across each probability of default band. A second area of quantitative disclosure will cover the performance of the bank's rating process—for example, the number of defaults in the past year in any probability-of-default band.

period,<sup>(1)</sup> for portfolios of exposures in each rating category, and shows that for loans to all borrowers down to BBB the Basel minimum requirements of 8% capital (of which 4% is equity) would probably be higher than the equity capital that a bank would chose to hold.

### 99.7% VaRs on portfolios of exposures—using CreditMetrics' transitions



Source: Bank of England calculations.

This disincentive for banks to hold prime-quality loans was probably one of the factors behind the securitisation boom in the United States. By March 1998, outstanding non-mortgage securitisations by the ten largest US bank holding companies amounted to around \$200 billion (more than 25% of these banks' loans).<sup>(2)</sup> Banks outside the United States were also increasingly turning to securitisation to adjust their portfolios. The ability of banks to choose how much risk they wished to carry against a particular quantum of regulatory capital threatened to undermine the objective of an international capital floor. Another concern about the Accord was that the limited recognition of risk reduction through collateral or credit derivatives would discourage banks from taking advantage of these techniques and more generally impair the development of markets.

This led to pressure on the Committee to try to align more closely the regulatory capital requirements with the risks on different exposures, recognising credit risk mitigation. In 1996, the Committee had amended the Accord to set requirements for trading books and had

allowed banks to use their own value at risk (VaR) models to establish the riskiness of portfolios of securities/foreign exchange according to parameters established by the Committee.<sup>(3)</sup> Some banks had started to develop credit risk models to establish the value at risk on portfolios of loans, and pressure mounted for the Committee to revise the 1988 Accord by allowing these models to be used to set capital for credit exposures. This led to an active debate on the accuracy of the models, during which the Committee reached the view that it would be premature to recognise these models to set regulatory capital.<sup>(4)</sup> Credit risk models are at a much earlier stage of development than the trading-book VaR models. This reflects the much more limited data on credit risk compared with long runs of returns data available for the trading-book VaR calculations.<sup>(5)</sup> Research on the reliability of the models, carried out for example in the Bank of England, indicated that the models yielded far more exceptions (ie losses that exceeded the estimated VaR) than they would if they were accurately measuring the risk.<sup>(6)</sup>

### Proposed new Accord

The Committee therefore had to find another way to assess the riskiness of individual loans. Two approaches are proposed for the new Accord. Under a standard approach, banks will slot loans into risk-weighting bands according to their rating by an external credit rating agency. This approach continues the current differentiation of exposures according to whether they are to sovereign, bank or other borrowers. One drawback of the use of external ratings is lack of comparability across ratings agencies. In some countries local rating agencies rate the local sovereign as AAA (the highest-rated credit in the market) and scale off that for other borrowers, even though the sovereign might be rated at only A or BBB by international rating agencies. This issue will need to be dealt with in implementation, perhaps through mapping ratings into the 'common currency' of default frequency by rating grade.

For some banks the standardised approach will offer a means of setting capital charges that is commensurate

(1) The data are based on the work of Kiesel, Perraudin and Taylor (2001). They carried out a study using a generalisation of JP Morgan's credit risk model CreditMetrics, which uses transition probabilities as the main driver of the value at risk (VaR). Future spreads and hence future prices given particular ratings are assumed to be known. Correlations between ratings transitions are proxied using correlations between borrowers' equity returns. The portfolios include 500 equally sized exposures in each risk category. The VaR is the estimate of loss that will not be exceeded on more than a set percentage of occasions, in this case 0.3%.

(2) Jackson *et al* (1999).

(3) Basel Committee on Banking Supervision (1996).

(4) Basel Committee on Banking Supervision (1999).

(5) Jackson and Perraudin (2000).

(6) Nickell, Perraudin and Varotto (2001).

with the size and complexity of their business. Nevertheless, it will not provide sufficient risk differentiation for many banks. The main disadvantage of the standardised approach is that in many countries relatively few corporates are rated, which will mean that most exposures will be in an unrated category carrying an 8% charge. It is also not clear that the rating agencies have better information on the prospects for the borrowers than the banks themselves. The Committee therefore decided to propose a second approach where the banks themselves would set the rating for the borrower as long as they met standards for the procedures used. In order to provide comparability, the common currency of default probability was adopted for the internal ratings. The Committee then had to decide on capital requirements sufficient to cover the value at risk on portfolios of exposures in these probability-of-default bands. Some of the issues that had to be considered in setting those capital requirements are outlined below.

As part of the new risk-based nature of the requirements, the Committee will recognise a much wider range of collateral and other types of credit risk mitigation. There will also be a more fine-tuned approach to securitisation, reflecting the extent to which a bank securitising loans has retained any risk.

In addition to the major change in the treatment of credit risk, the new Accord will introduce a charge for operational risk (the risk of loss from, for example, fraud, IT problems or legal risk). In the original Accord, coverage of these risks was effectively subsumed within the broad credit risk requirements, which provided an overall cushion for other risks as well. But going forward, perhaps the most important issue is that as credit and market risk are measured more and more tightly, using risk assessment techniques such as internal ratings, the extent of any extra cushion to cover other risks diminishes. Operational risk can be correlated with credit and market risks because problems such as fraud often come to light when a firm is under pressure. The Committee reviewed data on the extent to which banks set aside capital to cover operational risk and found that it amounted in many cases to around 20% of a bank's economic capital. Calibration so far undertaken by the Committee is based on a regulatory capital charge of around this magnitude. Work is continuing on the methods for calculating the charge, but it is proposed

that these would include a simple top-down approach for a whole bank, an approach with separate calculations for each business line, and one that would rely on a bank estimating the expected losses from operational risk in each risk type in each business line, with the Committee setting the formula to convert these into a capital requirement. The Committee envisages that banks will move over time towards more sophisticated approaches to measuring operational risk.

The Accord will also address the problem that one size does not really fit all. Some banks have much higher overall risk profiles than the average and therefore the minimum capital requirements would not always set an adequate floor. Under Pillar 2, banks will be required to assess the amount of capital that they need to hold to support the risks in their business. If supervisors believe that this is insufficient, they will require the bank to hold additional capital. Interest rate risk in the banking book, which is not captured under the trading-book treatment, will be covered by separate provisions in Pillar 2.

The Accord will also lead to substantially enhanced disclosure by banks on their risk profile and capital. Banks using internal methods for measuring the level of credit risk and operational risk will also have to disclose information on the approaches used and their accuracy.

Thus, although a need to change the treatment of credit risk was the main driver behind the revision to the Accord, the proposed approach goes beyond this to address operational risk independently and enhance both supervisory and market discipline.

### Some issues regarding the setting of the credit risk requirements

In order to set new risk-based requirements for credit exposures, a number of issues were addressed. Some of the most fundamental are outlined below.<sup>(1)</sup>

#### (a) Time horizon

One central issue regarding the setting of the new internal ratings based requirements for credit exposures was the period of time that should be covered by the capital requirement—whether banks should carry capital to cover potential losses over the next twelve

(1) For a discussion of other important dimensions of credit risk that had to be considered by the Committee (the effect of portfolio concentration, seniority and the definition of default), see Carey (2000).

months or a longer period, given that the average maturity of a loan book might be three years, or in some countries as much as seven years. In their economic capital models, banks calculate the requirement for the next year but if a bank has experienced substantial losses in a year, this raises the question of what happens at the end of the year. A bank might not be able to raise more capital if the quality of its loan book has deteriorated sharply, and sale of loans might be infeasible in a poor economic climate. A further complication is that under historical cost accounting banks can accumulate economic losses in a portfolio over a lengthy period without recognising them in the accounts, creating the potential for a large eventual adjustment to capital.<sup>(1)</sup> The horizon chosen has implications for the method of calibration of unexpected losses—either taking into account only defaults or also economic losses due to deterioration in credit quality. With a one-year horizon an economic loss basis would be more appropriate and will give banks scope to cover specific provisions as well as write-offs.

The Committee has adopted a one-year horizon because it is consistent with current industry practice, and has adopted an economic loss approach for calibrating capital requirements for corporate exposures under the internal ratings based (IRB) approach and for one of the options for adjusting for maturity—see below.

### (b) Assessments of borrower quality

Although banks would carry capital to cover one year's worth of losses, there was a question over the approach that should be taken to assessing borrower quality (ie probability of default). In their long-term ratings, the major credit rating agencies assess the prospects for a borrower through the cycle—taking into account ability to withstand a recession. Even so, credit ratings show a cyclical pattern, with more downgrades than upgrades in a recession.<sup>(2)</sup> This may well reflect the fact that the pattern of recessions varies, creating unusually severe effects for some types of borrower. Some banks claim to set point-in-time ratings, which may be based on current economic conditions, creating the potential for greater cyclicity. If capital requirements were based on ratings with high cyclicity, in a recession banks would not only face the usual pressure on capital caused by write-offs and specific provisions but would also have to meet

higher capital charges as they downgraded various borrowers, with possible implications for the real economy.

To avoid an effect of this kind, the Committee stresses in the consultative paper that the probability of default assigned to a particular borrower should 'represent a conservative view of the long-run average probability of default for the borrower grade in question...' and include a forward-looking element.

Over-optimism in allocating ratings by banks could have a similar effect and several checks will be built into the process to try to guard against this. Supervisors will carry out plausibility checks on a bank's ratings (comparing the slotting of individual loans and the distribution of loans across rating bands with those of different banks), and back-testing will be carried out to compare default outturns by band with expected numbers. The main difficulty with this process is that the small number of observations (one per year) will make any scientific analysis impossible. One of the most important cross-checks on the process will be Pillar 3. Banks will be required to disclose the allocation of loans across probability-of-default bands and also the default outturn by band. This will make market discipline in this area more effective.

### (c) Effect of the residual maturity of the exposure

The original Accord included a maturity dimension for non-OECD interbank exposures but not for other credits. An important question in the revision to the Accord was whether the residual maturity of the exposure was an important dimension in riskiness—ie whether the value at risk calculated over a one-year horizon increased according to the residual maturity of the exposure. Using a CreditMetrics-type approach, Kiesel, Perraudin and Taylor<sup>(3)</sup> calculated 99.7% VaRs for portfolios of 500 equally sized exposures and found a striking maturity effect, except for the lowest-quality exposures (below BB).

The Committee has decided to calibrate the basic requirements assuming an average three-year maturity. The consultative paper puts forward, for discussion with the industry, two options for allowing a full maturity dimension—one using a default mode and the other economic loss, which also takes into account the likelihood of credit deterioration.

(1) Jackson and Lodge (2000).

(2) Nickell, Perraudin and Varotto (2000).

(3) Kiesel, Perraudin and Taylor (2001).

#### (d) Treatment of corporate, sovereign and interbank exposures

The current Accord distinguishes between loans according to whether the borrower is a sovereign, bank or corporate. One question was whether, once the borrowers have been divided into risk classes using probability of default, a further differentiation needs to be made according to the type of borrower in order to align capital with risk, or whether the relationship between default frequency and value at risk is similar for all types of borrower. Data on bond spreads do not appear to point to either sovereigns or banks being lower risk than corporates.<sup>(1)</sup> Another way to look at riskiness is the likelihood of downgrades in ratings. The results for banks are interesting<sup>(2)</sup>—highly-rated US banks are more likely to be downgraded than similarly rated US corporates but below BBB the picture reverses, perhaps because it is difficult for banks to operate below investment grade.

For a given probability of default (PD) and loss given default, the Committee proposes to assign the same level of capital regardless of whether the exposure is to a corporate, to another bank or to a sovereign (although a floor PD of 0.03% applied to exposures to banks and corporates will not apply to sovereigns).

#### (e) The treatment of expected and unexpected loss

The economic capital models developed by banks assume that expected loss will be covered by margin or provisions and that economic capital covers unexpected losses (up to some confidence level). If a bank has a process for measuring expected loss, it will usually set the margin at the origination of the loan to cover the expected loss and to remunerate the capital held to cover unexpected losses. But over the life of a particular portfolio of loans, news about the outlook may cause credit quality to deteriorate, so that updated expected losses exceed the margin. Under historical cost accounting, embedded losses of this kind are not recognised until they occur. Provisioning policies vary from jurisdiction to jurisdiction but, for example, under the UK accounting standards a bank should only establish provisions to cover losses already in the book,

not a future loss caused by a shortfall of margin.<sup>(3)</sup> Also, under the Basel Accord, general provisions can be included within capital.<sup>(4)</sup> This means that a general provision raised to cover an expected loss could also be used to set against unexpected losses through Tier 2 capital.

The question of the treatment of expected losses is particularly important for lower-quality credits and for retail exposures, where expected losses are high in relation to unexpected.

The Committee is proposing to calibrate the capital charges to cover both a one-year expected loss and the unexpected loss.

#### (f) Overall capital

One issue when deciding on the capital requirements for each probability-of-default band is the appropriate solvency standard that regulators should be targeting for minimum capital.<sup>(5)</sup> This needs to balance prudence with efficiency. Banks are regulated to protect depositors (because of information asymmetries and the social consequences of loss of savings) but just as importantly to protect the financial system. This reflects their central role in the economy. Because of their position in the payments system and lending to small and medium-sized businesses and retail customers, the cost of banking crises can be very high. Bank of England research,<sup>(6)</sup> which examines 43 crises worldwide over the last 25 years, indicates that economic activity forgone during the length of a banking crisis can amount to between 15% and 20% of annual GDP.

Market pressure will ensure that most banks would set an appropriate solvency standard for themselves without any intervention from regulators. Most large banks target AA ratings (around 99.9% confidence that they will have capital to cover losses) so that they can be active in wholesale markets. But weaker banks in some markets, or whole banking markets if they are bolstered by a generous safety net, could gravitate to lower levels. Certainly before the original Accord was introduced market pressure had not prevented an erosion of capital in some markets. The regulatory standard has another

(1) Jackson and Perraudin (1999).

(2) Nickell, Perraudin and Varotto (2000).

(3) Jackson and Lodge (2000).

(4) Tier 1 capital, which accounts for half of the 8% requirement, consists of equity and reserves, and Tier 2 includes general provisions (up to a ceiling of 1.25% of risk-weighted assets) and subordinated debt.

(5) In calculating the value at risk of loans in different PD bands using credit risk models, the confidence level (or implied solvency standard) has to be set. The output of the models was used by the Committee to indicate the level of capital required. Gordy (2000) discusses the fact that it is possible to make a risk-bucketing approach (as used in the new Accord) consistent with a restricted version of any of today's leading credit risk models.

(6) Hoggarth, Reis and Saporta (2001).

important role to play as the benchmark against which banks worldwide are judged by the market. If that benchmark is too low or inappropriately designed then it could have a negative effect on market discipline.

The solvency level set by the minimum requirements needs to give regulators time to act before a bank starts to lose counterparties or depositors. This probably means that any standard has to be within investment grade because below it large banks are not viable without a safety net. But it should not be set too high because that will create efficiency problems.

The Committee did not endorse any particular solvency standard but did review the effect on the capital requirements of several solvency standards around the investment-grade level. The relative requirements under the IRB approach were, however, calibrated to an assumed 99.5% confidence level—ie equivalent to a low investment grade (BBB-). An extra buffer was included to cover, for example, measurement errors in PDs. The resulting spectrum of capital requirements for exposures with different PDs gives, for example, an 8% capital requirement for exposures with a PD of 0.7%. Under the Basel definition of capital, up to half of the 8% can be accounted for by subordinated debt and part of the extra buffer included in the capital requirements was to allow for the lower loss-absorbing capacity of this element of capital. In their economic capital models banks cover unexpected losses with equity and reserves.

Overall, the new Accord, under the standardised approach, is intended to deliver broadly the same amount of capital as the current Accord. There should be a modest reduction under the internal ratings approach to provide banks with an incentive to adopt it. For any bank, the effect of the internal ratings approach on required capital will depend on the risk profile of its particular book—high-risk books will demand more capital than currently and low-risk books less. The effect

on a range of different banks across the G10 and beyond therefore needs to be determined. This will be achieved through a quantitative impact study over the first half of this year. The results will inform the final decisions on the shape of the new Accord later this year.

## Conclusion

The new Basel Accord will represent a major change in the way that regulatory capital for most large banks is calculated, given the proposed adoption of the internal ratings approach. Ensuring that the capital requirements set by the Committee are accurately aligned with the risks has made a careful assessment of the structure of credit risk and its determinants essential.

Given the systemic importance of banks, there need to be careful checks and balances in an approach that allows banks to use their own internal processes to set the main component of their credit risk charge. The Committee is building into the process plausibility checks for the ratings and back-testing of probability-of-default bands against default outturns, but Pillar 3 will also be crucial. It will ensure that there is market scrutiny of each bank's allocation of loans to probability-of-default bands. Pillar 3 overall will be an important bolster to the minimum capital requirements, helping to shift emphasis towards market discipline and away from reliance on regulators.

Likewise, Pillar 2 will provide an important encouragement to supervisors to consider the risk profile of individual banks and to consider supervisory action, including higher capital requirements if risks appear to be high.

Clearly the new Accord will have a number of implications for the banking sector and the relationship of different financial intermediaries. The Bank will be exploring these further in the period ahead.



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