

The new capital adequacy regime – the ECB perspective

The new Capital Accord proposed by the Basel Committee on Banking Supervision represents a major improvement on the present one; it significantly enhances the effectiveness of capital regulation and the stability of the banking system. Effectiveness is increased primarily since the new Accord is more comprehensive and forward-looking. Stability is enhanced, first and foremost, because there is increased alignment of capital requirements with the risks taken by individual banks. Furthermore, the new Accord supports the development of banks' risk management practices, since internal risk ratings can be used for establishing the regulatory capital requirements (internal rating-based (IRB) approach).

The move towards a significantly more risk-sensitive regulatory framework creates challenges for the supervisory authorities in charge of implementing it and for international co-operation.

The first challenge is related to the increased volatility and cyclical sensitivity of the minimum capital requirements under the IRB approach. Consequently, banks may need higher capital buffers, over and above the minimum requirements, than before in order to avoid capital constraints in economic downturns. Encouraging banks to develop internal risk measures that give more emphasis to the time dimension of risks, paying close attention to the adequacy of banks' capital buffers and the implementation of other complementary supervisory measures (primarily "dynamic provisioning") might be duly considered by supervisors when adopting the new regulatory framework. In general, the implementation of a risk-sensitive and adequately stable IRB approach by a large number of banks would enhance financial stability.

The second challenge arises from the role the new proposals assign to supervisory authorities and market participants in disciplining banks' risk-taking. The smooth interaction between the three pillars of the new Accord (minimum capital requirements, supervisory review process and market discipline) is crucial to promote the safety and soundness of credit institutions. In particular, the effectiveness of the new tools and the need to safeguard equality in terms of international competition require an adequate convergence of supervisory practices, the international harmonisation of accounting standards and enhanced disclosure by banks. These developments would be particularly important in the context of the single market for financial services within the European Union.

I Overview of the proposed new Capital Accord

The Basel Committee on Banking Supervision (BCBS) was established in 1974 and comprises the central banks and other banking supervisory authorities from the G10 countries, Spain and Luxembourg. It formulates supervisory standards and guidelines, and issues recommendations on best supervisory practices, thereby encouraging convergence towards common approaches. In 1988 the BCBS introduced the first Capital Accord that provided for a credit risk measurement framework and a minimum capital standard. The 1988 Accord has become a global standard for capital regulation. It establishes a uniform rule (i.e. the required minimum capital ratio) to hold 8% equity capital and other capital-like items in relation to risk-weighted

assets, which are determined by allocating assets to specific risk buckets. The Accord has been instrumental in harmonising the international regulatory environment and in enhancing bank soundness.

Nevertheless, the 1988 framework has come under pressure as a result of several developments, which have eroded the effectiveness of its simple rule-based methodology. First, it has failed to prevent banks from incurring increased risks, and hence receiving higher margins, without increasing the capital required. This kind of arbitrage may be especially prevalent for corporate loans, since all loans to private sector firms are grouped together in a single

(100%) risk bucket irrespective of the underlying risk. Second, financial innovation has rendered the Accord's focus on traditional on-balance-sheet credit risks inadequate. As there is a higher relative burden on banks that have a relatively low-risk credit portfolio, asset securitisation and other transactions have also evidently been carried out in order to reduce the regulatory capital burden, possibly reducing banks' asset quality.

The new BCBS proposals entail substantial innovations to remedy these distortions, thus increasing the efficiency of financial intermediation via greater risk recognition and enhance the stability of the banking system. The BCBS presented a proposal for a new framework to replace the 1988 Accord in June 1999. Following extensive interaction with banks and industry groups, a second comprehensive consultative package was issued in January 2001, which will enable the BCBS to receive additional feedback on the proposal by the end of May 2001. It is envisaged that the new rules will be implemented by 2004. The European Commission has also issued a consultative document on the corresponding European Union (EU) regulation. This document basically supports the Basel recommendations, but focuses on certain issues of particular interest from an EU perspective. The Commission's consultative document is a first step towards the translation of the new Basel Accord into EU legislation.

The proposed new capital adequacy regime is substantially different from the present one: it is much more comprehensive, risk-sensitive and forward-looking. These characteristics represent marked improvements, but come at the inevitable expense of greater complexity. Box I contains a glossary of the key terms appearing in the new framework.

A comprehensive new approach to capital regulation

The new Accord considerably widens the scope of capital regulation: *minimum capital requirements (Pillar 1)*, based on an enhanced methodology, are complemented by the *supervisory review process (Pillar 2)* and *market discipline (Pillar 3)*. The proposed revisions improve the risk assessment methodology, which determines the denominator of the required capital ratio. The numerator, i.e. the capital elements, will not be changed at the present juncture, nor will the 8% minimum capital ratio.

There are two options for the measurement of credit risks: the *standardised approach* and the novel *internal rating-based (IRB) approach*. The standardised approach has a structure similar to the present Accord, but unlike the current simple risk buckets, it provides for risk weights based on the external ratings of banks' counterparties. National authorities endorse external credit assessment institutions in line with the broad criteria set out by the BCBS. In the IRB approach, the risk weights are based on banks' internal ratings of their borrowers, which are validated by national supervisors in line with the common criteria issued by the BCBS. Most banks base their rating methodology on the risk of a borrower's default (*probability of default*), while qualitative assessments can also play an important role. Other quantitative elements also influence the risk weights (loss given default, exposure at default, maturity and portfolio concentration representing the main elements).

The new Accord provides for two sub-options within the IRB approach: the *foundation approach* and the *advanced approach*, the latter being for banks with sophisticated internal risk management systems. Under both alternatives, banks need to have a system to estimate probabilities of default which is validated by supervisors, while internal estimates of the loss given default and the exposure at default may be used under the advanced approach. The

Box I

Glossary of key terms in the new Capital Accord

Asset securitisation: Packaging of assets into securities for sale to third parties.

Credit risk: Risk of a loss from a default (i.e. failure to meet obligations to service debt) of a counterparty.

Economic capital target: Level of capital deemed appropriate by banks to cover future risks. The target stems from quantitative and qualitative internal risk assessments.

Exposure at default: The amount of exposure to a counterparty in the event of, and at the time of, that counterparty's default. This measure reflects the certainty of the exposure (e.g. it can be less than 100% for credit lines).

External ratings: Credit risk assessments issued by private or public sector credit assessment institutions (such as rating agencies).

Interest rate risk (on the banking book): Risk of a decline in earnings and (net) asset values in relation to traditional banking activities owing to movements in interest rates.

Internal ratings: Banks' own internal measures of credit risk associated with particular borrowers, usually based on quantitative probability of default estimates, but also involving qualitative assessments.

Internal rating-based (IRB) approach: One of the two main options for banks to establish the minimum regulatory capital requirements. The risk weights are based on banks' own internal ratings and certain other quantitative elements, subject to supervisory validation in line with the common criteria issued by the Basel Committee on Banking Supervision (BCBS).

IRB advanced approach: In this sub-option under the IRB approach, a bank with a sufficiently developed internal risk management system is permitted to use more internal inputs than probabilities of default for setting the capital charges (e.g. the exposure at default and the loss given default).

IRB foundation approach: In this sub-option under the IRB approach, banks estimate internally the probability of default associated with each borrower, while supervisors supply the other inputs.

Loss given default: A measure of the expected average loss that the bank will experience per unit of exposure, should a particular counterparty default.

Market risk (in the trading book): Risk of a loss from trading positions when market prices move adversely.

Operational risk: Risk of a loss mainly resulting from inadequate internal control systems, or from extraordinary external events.

Pillar 1: Rules that define the minimum capital requirements (ratio of capital to risk-weighted assets).

Pillar 2: Supervisory review process, which requires supervisors to assess banks' capital allocation techniques and capital adequacy, and compliance with the relevant standards.

Pillar 3: Strengthened market discipline via enhanced public disclosure requirements.

Probability of default: The probability that a counterparty will default in a chosen time horizon.

Regulatory capital ratio: Required ratio (8%) of recognised capital items to risk-weighted assets.

Risk weights: Methodology to ascribe to each balance and off-balance-sheet item a percentage weight reflecting the presumed credit risk. Risk buckets consist of the groups of these items with a particular risk weight.

Risk-weighted assets: Weighted sum of the balance and off-balance-sheet items based on the risk weights.

Standardised approach: One of the two main options for banks to establish the minimum regulatory capital requirements. It introduces new risk weight categories in comparison with the current Accord. Moreover, the risk weights are based on external ratings of banks' counterparties, recognised by national supervisory authorities in line with the criteria established by the BCBS.

foundation approach can significantly increase the number of banks that are able to apply the internal risk measures. This is an especially appreciated feature of the proposals from an EU perspective, since the scarcity of external ratings would limit the risk differentiation available under the standardised approach.

Pillar 2 establishes an active role for supervisory authorities to judge whether a bank's capital position is consistent with its risk profile. Banks are required to assess their *economic (i.e. risk-based) capital targets*, and supervisors should have the possibility, when deemed necessary, of demanding capital in excess of the minimum requirement. The supervisory review process provides supervisors with considerably more discretion in assessing banks' capital adequacy than before. Tougher information disclosure recommendations under Pillar 3 are intended to enhance the ability of banks' stakeholders (e.g. subordinated debtholders or interbank depositors) to monitor a bank's risk profile and capital adequacy. The two additional pillars have the potential to increase the effectiveness of capital regulation significantly.

New risks will also be brought within the scope of the Accord, in addition to credit risks and market risks in trading activities. There will be capital charges on operational risks (Pillar 1) and interest rate risks on the entire banking book (Pillar 2). In addition, credit risk mitigation techniques, i.e. the use of collateral and hedging instruments (guarantees and credit derivatives), and asset securitisation issues are recognised.

In order to smooth the transition from the current to the new regulatory framework, the BCBS intends to ensure that the aggregated capital requirement remains reasonably close to the present level. Hence, no additional burden would be created, while the distribution of the required capital may change considerably from bank to bank.

Smooth interaction between the three pillars will be a crucial element for the effectiveness

of the new framework in enhancing supervisors' tools and market discipline, and in promoting the adoption of more refined risk-management techniques by banks. The new Accord will leave increased scope for discretion at the national level in the implementation of the three pillars and, especially, in the way in which they actually interact. The continued pursuance of the objective of international competitive equality will therefore call for enhanced convergence in supervisory practices. This issue is already being addressed at the EU level, reflecting the need for more uniform approaches in integrated financial markets.

Significant shift towards risk sensitivity

The main goal of the revision of the minimum capital requirements, and of the recognition of the other risks and credit risk mitigation techniques, is to narrow the present gap between the regulatory capital and the risk-based economic capital, which may have produced unwelcome distortions. Accordingly, the proposals lead to a substantially greater *risk sensitivity* of the capital requirements. In turn, this ensures that banks which take on greater risks also hold additional capital to cover these risks. The new Accord may also increase the chances that banks and supervisors will tackle any emerging capital adequacy problems rapidly. Hence, the impact on banking system stability is clearly beneficial.

Both standardised and IRB approaches are available for all basic types of claims on corporations, sovereigns (central government and, under specific conditions, other public sector entities) and banks. The risk weights in the IRB approach are more differentiated and cover a larger range, but there is also an increase, relative to the present set of rules, in the range of the risk weights in the standardised approach. For instance, top-rated companies receive a 20% risk weight and additional buckets of 50% and 150% are created. Table I presents representative values for the corporate risk weights under the "benchmark" IRB approach

and compares them with the standardised approach.

The risk weights for banks and sovereigns resemble those for corporate credits under both approaches, while a 0% risk weight is also available for sovereigns (if the respective sovereign rating is above or equal to AA-), as is currently the case with the OECD countries. As to claims on banks under the standardised approach, national supervisory authorities must consistently apply one of two options. First, the risk weights can depend on the ratings of the countries in which banks are incorporated. Under this first option, ratings above or equal to AA- would result in a 20% risk weight, which is currently applied to OECD country banks. Second, the risk weights can be based on external credit assessments of the banks themselves. Banks rated above or equal to AA- will receive a 20% risk weight. Risk weights are reduced in the case of short-term claims with an original maturity of three months or less.

Forward-looking proposals that support developments in risk management

Allowing the use of internal risk measures is a fundamental innovation, which reduces the likelihood of the regulatory framework becoming outdated as a result of

developments in financial innovation and risk management techniques. In addition, banks' informational advantages can be better exploited to achieve a more accurate alignment between the regulatory capital and the target level of economic capital. Finally, placing responsibility clearly with the management gives banks incentives to develop internal risk management systems.

The inability to recognise credit *portfolio diversification* (i.e. default risk correlations between borrowers) has been identified as a major shortcoming of the present Accord. The consequence is that capital charges are disconnected from the actual risks at the bank level, as they focus on the individual credit level. Full recognition of portfolio diversification is not yet present in the new framework. However, the IRB approach is regarded as an "intermediate step" towards the regulatory acceptance of fully-fledged internal credit risk models, which explicitly recognise this aspect. Analogous internal models are already allowed for setting capital charges on the market risks in the trading portfolio.

In conclusion, the characteristics discussed above make the basic BCBS proposals very worthy of support. At the same time, the effectiveness of the new framework, its ability to promote more sophisticated risk

Table I
Standardised and IRB approaches for corporate credits

External rating grade	Probability of default (%) ¹⁾	Risk weights	
		Standardised approach	IRB approach ²⁾
Floor	0.03	20	14
AAA to AA-	0.03 to 0.05	20	14 to 19
A+ to A-	0.06 to 0.11	50	21 to 31
BBB+ to BB-	0.12 to 1.33	100	33 to 149
B+ to CCC or lower	1.34 to 20.00	150	150 to 625
Cap	20.00	150	625
Unrated		100	

Sources: KMV Corporation and BCBS.

1) According to KMV Corporation data.

2) Based on the maturity assumption of three years ("default" model yields the same as "marked-to-market" model), loss given default of 50% and exposure at default of 100% ("benchmark assumptions"). The figures in bold are from the BCBS. Others are interpolated.

management techniques and its continued contribution to creating a regulatory environment coherent with the globalisation of financial intermediation will require a sustained effort by supervisory authorities. The remainder of the article addresses some

issues which merit the attention of the supervisory authorities when implementing the framework, especially in the euro area and the rest of the EU, where banking markets are becoming increasingly integrated.

2 Minimum capital requirements and business cycles

The potential propensity of the banking system to intensify economic fluctuations (“financial pro-cyclicality”) is an important concern from a financial and macroeconomic stability perspective. Pro-cyclicality arises if the capital (or provisions) accumulated during economic upturns are not adequate to cover the risks materialising in downturns and banks are forced to recall loans to satisfy capital requirements. Banks’ retained profits, which add to capital, are typically boosted in favourable economic conditions and rise less rapidly (or even fall) in recessions. The same patterns usually govern loans and other assets. Hence, even in the absence of regulatory capital requirements, the quantities of banks’ capital and assets are likely to be pro-cyclical, while the evolution of the capital ratio is generally ambiguous.

Capital regulation may affect financial pro-cyclicality. Namely, the minimum capital requirement may become binding in a downturn if banks’ capital ratios fall close to the 8% level. The resulting capital shortage may induce banks to reduce lending beyond what would be warranted on the basis of the reduced demand for loans in a downturn. After reviewing the issue under the present Accord, the article concludes that the risk of financial pro-cyclicality could increase under the new Accord.

Pro-cyclical impact of the present Accord has probably been limited

The major global implications of the present Accord were reviewed in a BCBS Working Paper (see “Capital requirements and bank behaviour: the impact of the Basel Accord”,

1999). First, average capital ratios have increased significantly since the late 1980s, owing to the pressure on weakly capitalised banks. This development has also reduced the risk of financial pro-cyclicality, as banks’ *capital buffers* over and above the minimum level have increased. Indeed, banks often have these buffers against future losses, thus mitigating the threat of a capital shortage in worsened economic conditions. Also, in the euro area countries, banks’ average capital ratios are generally higher now than in the late 1980s. The aggregated (weighted average) capital ratio across euro area countries has risen from approximately 9.0 at the end of 1989 to 10.6 at the end of 1999 (according to OECD and BIS data). The average capital ratio of the 100 largest euro area banks stood at approximately 10.9 at the end of 1999 (according to Fitch/BCA BankScope commercial database). Their capital position is usually enhanced by a strong share of equity capital.

Second, banks usually raise new capital in favourable economic conditions, whereas cutting back loans or shifting to lower-risk assets is more cost-effective in troughs. There is evidence that weakly capitalised banks have sometimes reduced lending in downturns, or have moved out of high risk-weighted assets. However, it is difficult to assess whether the cause was the capital requirement or concern about a weakened credit quality. The existing global evidence suggests that the regulatory requirements may have become binding and affected lending only in deep downturns. Looking at the evolution over time in the euro area countries, banks’ aggregated capital has often increased significantly in periods of higher economic growth since 1989, more

than offsetting simultaneous asset growth. Conversely, capital growth has often declined more than asset growth in periods of downturn. This pattern would indicate that bank capital has successfully acted as a cushion to absorb cyclical fluctuations without an apparent need to reduce lending owing to a capital shortage.

Potentially heightened pro-cyclical impact of the new Accord

In addition to the changes in capital and assets over time, the risk weights can likewise become cyclically sensitive under the new Accord, causing the capital requirement to increase in a downturn. Risk weights can become volatile, especially under the IRB approach, since banks' estimates of probabilities of default, and hence their internal ratings, would be likely to vary over time and depend on economic cycles (see illustration in Box 2). The survey carried out by the BCBS of major international banks' internal rating systems (see "Range of practice in banks' internal ratings systems", 2000) concluded that the ratings of almost all banks are based on borrowers' current conditions. They are usually valid for only a short time horizon of one year ("point-in-time risk measures"). Banks rarely attempt to take a longer-term view or to take into account the cyclical sensitivity of the default risk. Additional pro-cyclicality may also arise from credit risk mitigation techniques, e.g. as a result of the enhanced collateral position in growth periods.

The characteristics of banks' internal ratings seem to contrast with the external ratings of the major agencies. External ratings are typically intended to be valid for a longer period of time ahead and to withstand "normal cyclical fluctuation" ("through-the-cycle ratings"). Indeed, a number of recent studies have found that rating agencies move slowly and that their ratings are often inflexible. However, external ratings have experienced significant swings in times of financial crises, as was the case during the

recent emerging markets' crises of 1997 and 1998. Hence, the risk weights based on external ratings could also be volatile in such situations.

The quantitative impact on the actual regulatory capital requirements would depend on the portfolio composition of individual banks. The illustrations in Box 2, however, suggest that the increase in the minimum required capital quantity under the IRB approach might be substantial in a deteriorating economic environment, on account of the new element of the volatility of the probability of default measures. Hence, banks could face increasing capital needs in periods when capital is most costly and could choose to reduce assets instead, which might deepen the downturn. In other words, banks could become vulnerable to rising risks in a downturn, if they did not accumulate capital buffers above the minimum regulatory requirement in an upturn. As noted, banks usually have buffers above the minimum to ensure that they will not face capital constraints. However, under the IRB approach, they could need significantly higher buffers than before to avoid the minimum capital ratio becoming binding in worsened conditions. The risk of adverse macroeconomic consequences would depend on the proportion of banks actually using the IRB approach.

The issue of the potentially heightened pro-cyclical impact of the new Accord has been acknowledged and analysed by the BCBS, and the second consultative paper discusses some possible ways forward. Possible means of dealing with the issue are considered in some detail hereafter.

Means of reducing the risk of financial pro-cyclicality

Certain elements could be introduced to reduce pro-cyclicality in the measurement of the probabilities of default themselves. Drawing on past experience and using longer-term average probabilities of default could be

Box 2

Illustrative examples of the potential pro-cyclical impact of the new minimum capital requirements

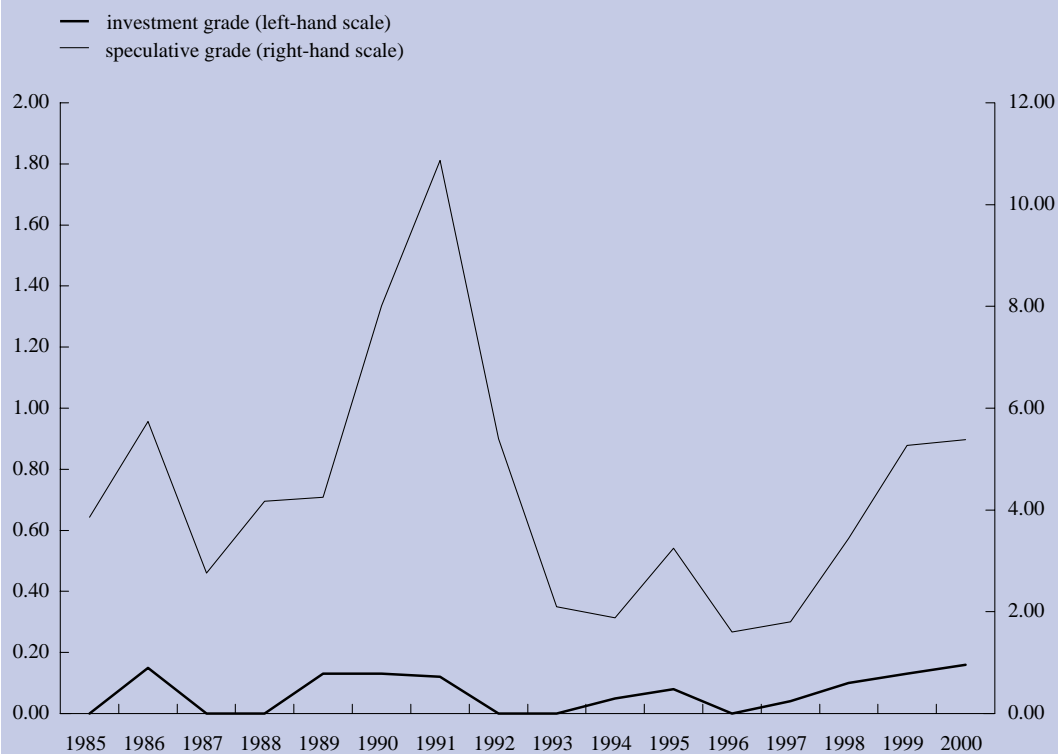
As noted in the main text, the volatility of banks' probability of default measures for their borrowers, and hence of internal ratings, is the main reason for the potentially increased pro-cyclicality of the capital requirements under the new Accord. Data on banks' own measures are not readily available. However, the volatility of the "point-in-time"-type measures of the probability of default might be illustrated by the actual default rates in the global pool of bond issuers rated by Standard & Poor's (S&P) (see Chart A). These default rates may be representative of the measures currently considered by banks, since they also reflect the short-term condition of the borrowers. Banks may also base their measures on the default rates issued by rating agencies. Default rates tend to follow to a significant extent the evolution of the business cycle, as for instance illustrated by their rise in 1991, which coincides with an economic slowdown in OECD countries.

Chart B provides a rough idea of the potential impact of the volatility of the default rates on a portfolio of commercial loans under the IRB approach, by considering two sample portfolio structures, where external ratings are ascribed to borrowers. The first portfolio structure (S&P) is based on the current external rating composition in the S&P database, whereas the second one (US50) is based on the internal ratings of the 50 largest US banks converted to the same external rating scale. The benefit of the latter is that loans without external ratings are also included. Unfortunately, this kind of information does not appear to be available for EU banks.

Chart B depicts the evolution of the minimum capital *quantity* needed under the IRB approach to maintain the 8% capital ratio for the two portfolios, assuming that the probabilities of default follow the actual default rates in the S&P database. The risk weights used in the calculations are provided by the Basel Committee on Banking

Chart A: Actual default rates in the pool of S&P-rated bond issuers, by rating category

(default rates as percentages)



Sources: "Ratings Performance in 2000", Standard & Poor's. The actual default rates represent the realised defaults in the data set of close to 10,000 global bond issuers rated by S&P.

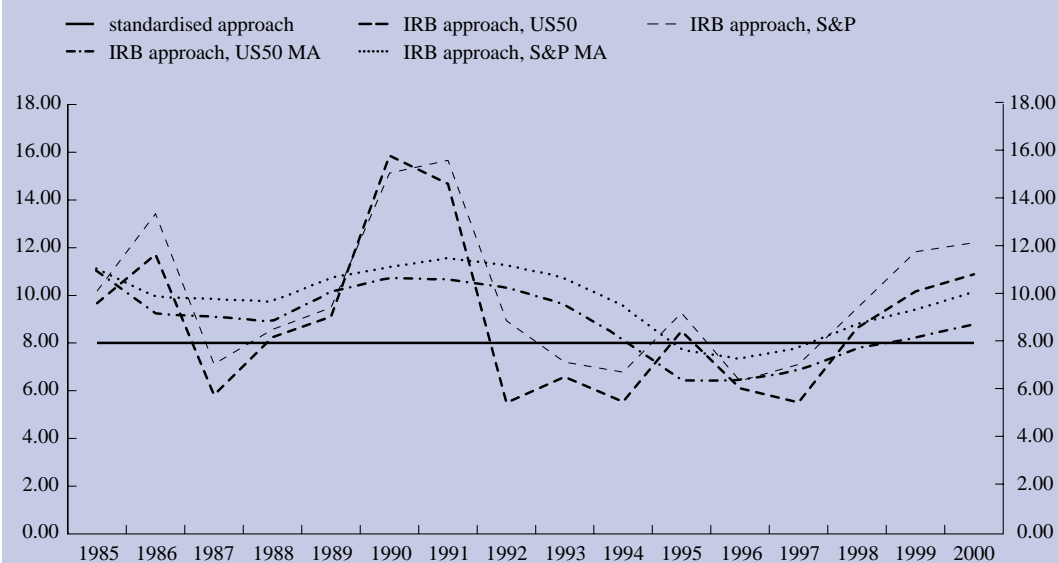
Supervision (BCBS) (Table 1, benchmark assumptions). The capital quantity is set equal to 8 for the standardised approach, which does not change, because the portfolio rating composition is fixed over time. The calculation isolates the additional pro-cyclical impact within the IRB approach owing to the new element of the volatility of the default rates and hence the changes in risk-weighted assets. The effect is quite significant: the lowest requirement in the examples is approximately 60% below the highest one in this experiment based on past data. The results are quite similar for the two sample portfolios, since while the US50 portfolio has fewer top-rated borrowers, it is more concentrated on the medium rating range, whereas the S&P portfolio is more evenly spread throughout the rating sphere.

Additional volatility in the capital requirement could also come from changes in portfolio composition over time, since the volatility of default rates of lower-rated firms is likely to be higher than that of top-rated firms (see Chart A). Hence, shifts in banks' portfolios towards weaker-quality borrowers, as might take place following the increasing use of securities market finance by higher-rated firms, could heighten pro-cyclicality.

Chart B also shows the minimum capital requirements for the sample portfolios based on a five-year *moving average* (backwards) of the default rates, illustrating that long-run averaging, as suggested by the BCBS, could indeed smooth fluctuations in the capital requirement and alleviate pro-cyclicality concerns.

Chart B: Required capital quantity for the sample portfolios over time

(quantity expressed in monetary units)



Note: MA = Moving average.

Sources: "Ratings Performance in 2000", Standard & Poor's, and "Credit Risk Rating Systems at Large US Banks", Treacy, W. and Carey, M., *Journal of Banking and Finance*, 2000, Vol. 24.

a theoretically simple, albeit a backward-looking solution (see example in Box 2). Establishing probabilities of default in a conservative fashion in upturns in the case of borrowers from cyclically sensitive industries or developing more rigorous forward-looking assessments via scenario analyses or stress tests could represent further solutions. These options would not necessarily lower the risk sensitivity of the capital requirements, since

risk differences between borrowers would still be recognised. Indeed, the BCBS proposes that banks quantify their probability of default estimates in an adequately conservative and forward-looking fashion, or use stress tests to evaluate their capital adequacy.

As to the feasibility of such solutions, the first critical issue is the *adequacy of data*.

According to survey findings, banks often lack historical data and may therefore, at least at an early stage, not be able to implement stable and conservative internal ratings. A *joint database* aggregating rating information from banks (while maintaining the confidentiality of information on borrowers) has been proposed in the EU consultative document, for instance, to facilitate reliable implementation of the IRB approach, in particular by smaller banks. This initiative could be supported, also because it could help banks to establish internal ratings in a more reliable and conservative fashion.

Incentives represent the second critical issue. Banks incur substantial costs when approaching or falling below the minimum capital requirement; these are due, for instance, to potentially higher funding and capital acquisition costs, potentially adverse customer reactions, or supervisory interventions. They could then voluntarily increase their capital buffers or shift towards less risky assets. These developments would naturally reduce the risk of financial pro-cyclicality. In a competitive environment, however, banks might understate their capital needs in a buoyant part of the economic cycle in order to reduce their capital costs. Similarly, they may not promptly adjust their internal ratings downwards in deteriorating economic circumstances. These concerns could be aggravated if the bank in question were in a weak financial condition.

Hence, it seems necessary that *supervisory authorities* pay due attention, in implementing the new Accord, to the adequate stability and conservatism of banks' internal ratings. The current point-in-time status of banks' internal risk control systems and the lack of appreciation of cyclical risks are at the core of the pro-cyclicality concern. While it cannot be ruled out that spontaneous developments will take place among banks, progress could require guidance from supervisors as regards the appreciation of the development of risks over time.

Another solution discussed by the BCBS to mitigate the risk of financial pro-cyclicality relies on the supervisory review process. For instance, banks that are deemed especially cyclically sensitive might be required to hold capital buffers over and above the minimum during periods of high economic growth. This solution would entail significant discretion on the part of supervisors.

Further supervisory action outside the scope of the Accord could also be considered, first and foremost with regard to banks' *provisioning practices*. If banks assessed expected losses with due consideration of the entire future risk profile of the loan over economic cycles and set aside provisions to cover these expected losses, buffers against cyclical variation and capital deterioration would be created. This way of establishing provisions is called "*dynamic provisioning*". It would be desirable from a financial stability angle, and its further investigation should be encouraged. It contrasts with the currently predominant "*static provisions*", which are set only when assets become impaired. Certain obstacles to dynamic provisioning may exist with respect to accounting practices and taxation. However, in the majority of the euro area countries, where loan-loss provisions are also allowed against non-impaired assets, accounting rules might not represent an insurmountable obstacle.

To conclude, it is advisable that supervisory authorities devote attention to the issue of pro-cyclicality when implementing the new framework. The EU supervisors could have a common interest in this, since macroeconomic conditions are gradually becoming more closely interwoven, especially in the single currency area. The potential means of mitigating the risk of financial pro-cyclicality through more conservative and forward-looking internal ratings and specific counter-measures by supervisors, primarily dynamic provisioning, should not be considered mutually exclusive, but complementary.

3 Other issues regarding minimum capital requirements

3.1 Incentives to develop internal risk management systems

One of the main innovations of the new Accord is its recognition of internal risk measures and the related potential incentives in favour of developing internal risk management systems. However, the potential beneficial effects depend crucially on the number of banks that effectively use the IRB approach. In particular, medium-sized and small banks may not yet have internal rating systems, or systems are not yet sufficiently developed to fulfil supervisory standards readily.

Obstacles may exist to the development of the IRB approach

The first hurdle when applying the IRB approach might lie in the *incentive structure* of the new framework. The range of risk weights is significantly wider in the IRB approach than in the standardised approach; thus, banks with a loan portfolio concentrated on lower-risk borrowers may have the strongest incentives to use the IRB approach, as it gives way to a lower capital requirement (as illustrated in Box 3). Banks with a higher-risk portfolio, by contrast, might stick to the standardised approach. An additional barrier to using the IRB approach may also result from the fact that risk weights can increase with the maturity of loans. Given that there is no maturity adjustment under the standardised approach, the discrepancy between the two approaches would therefore be higher, the longer the maturity.

Hence, those banks that would benefit most from more advanced internal credit risk management techniques could actually have the weakest incentives to develop them. The volatility of the capital charges, if calculated under the IRB approach, may also constitute an additional hurdle. Should banks with a lower risk focus opt for the IRB approach and those with a higher risk focus for the

standardised approach, the minimum capital requirement for the entire banking system could also fall.

The BCBS acknowledges this issue and proposes some capital relief for banks using the IRB approach and further rewards for moving to the advanced approach. For banks with higher-risk portfolios, however, these envisaged incentives may not be decisive.

The second hurdle may be related to the costs of developing sufficiently robust internal rating systems. As the fixed investment costs are quite high, only sufficiently large banks could make these investments. The establishment of adequately large databases on borrowers and defaults to estimate probabilities of default reliably may represent a particularly costly element. Therefore, using commercially available data and methods for the development of IRB systems might be a solution for many banks. The joint database already referred to above could actually favour the setting-up of internal rating systems by small and medium-sized banks themselves. It would also allow a back-testing of individual systems and thereby facilitate consistent official recognition. Any collaboration between banks should not, of course, involve a transfer of risk management responsibility away from individual banks, or impair effective competition in the credit markets.

In conclusion, the high risk sensitivity of the IRB approach may hinder its widespread implementation by banks with riskier credit portfolios and could, therefore, lead to an undesirable split between banks using the standardised approach on the one hand, and the IRB approach on the other. This issue might be considered when calibrating the IRB approach. The Accord also provides for the possibility of supervisors playing an important role by exerting pressure to develop adequate risk management systems, to move towards the IRB approach and to define appropriate economic capital targets.

Box 3

Comparison of the standardised and the IRB approaches for corporate credits

The chart below assists the assessment of the incentives for banks to switch from the standardised to the IRB approach by comparing the risk weights applied to banks' corporate counterparties under the two approaches. In the chart, the risk weights under the IRB approach are expressed as a percentage of the risk weights under the standardised approach. The comparison is based on the benchmark IRB assumptions (described under Table 1) and is made for varying levels of bank asset quality, according to external ratings. The risk weights are derived for the different external ratings by, first, converting the ratings into the respective default probabilities (as in Table 1). Second, these default rates are translated into risk weights, based on the calibration currently envisaged by the Basel Committee on Banking Supervision (BCBS).

The exercise disregards many detailed features like the alleviation of credit risks via the use of collateral, guarantees or credit derivatives. However, the comparison includes the impact of the maturity adjustment of the risk weights under the IRB approach, since it could be a major source of discrepancy between the two approaches. No maturity adjustment is considered under the standardised approach. It applies to the advanced IRB approach and possibly also to the foundation IRB approach (although the BCBS envisages the possibility that maturity is disregarded in the foundation approach). The BCBS currently proposes two models for the calculation of the maturity adjustment, namely the "default" and the "marked-to-market" models. Only the former model is displayed here, since the alternative would produce principally the same kind of results, although maturity affects the risk weights more under the "marked-to-market" model. The "marked-to-market" model resorts to a broad definition of credit risk, which incorporates elements like rating downgrades or changes in credit spreads, and not only the occurrence of defaults as in the "default" model.

The chart reveals that banks could be more inclined to opt for the more risk-sensitive IRB approach (either the advanced or foundation version) when they have higher-quality exposures, and that the opposite result holds for

Risk weights under the IRB approach ("default" model maturity adjustment), as a percentage of the risk weights under the standardised approach



Sources: BCBS and KMV Corporation.

less favourably rated counterparties. The BCBS requires that banks apply consistently either the standardised or the IRB approach to all their major credit portfolios. For a loan maturity of up to three years, the IRB approach is generally more favourable than the standardised approach for borrowers down to the BBB-/BB+ grade, i.e. for investment grade borrowers. Speculative grade borrowers receive a risk weight, which can be up to four times higher under the IRB approach. In the case of longer maturities, e.g. five or ten-year credits, the cut-off point is at a higher rating.

The actual diversification of portfolios among borrowers of different quality would dictate the strength of the incentive or disincentive to apply the IRB approach. For the two sample portfolios used in Box 1, the IRB approach seems to lead to a higher capital charge at the moment (with year 2000 default rates). It should be noted that the changes in default rates over time would affect the comparison between the IRB approach and the standardised approach.

3.2 Implications for interbank activity

The new Accord is sometimes suspected of influencing the allocation of interbank business across banks, since capital charges could affect banks' lending choices. In principle, the implications for the structure of interbank activities could be quite different, depending on the option chosen by supervisors or banks to establish the capital charges. Here this issue is examined from a euro area perspective.

Under the first option within the standardised approach (based on sovereign ratings), all domestic counterparties would be assigned the same risk weighting, hence without major implications for euro area interbank market patterns. Under the second option within the standardised approach (based on the external ratings of interbank counterparties), the capital requirements resulting from the higher risk weights assigned to weaker-rated banks (see Table 2) might in principle strengthen the *concentration* of interbank activity on major, higher-rated banks. This might in turn induce a greater concentration of risks. A similar effect might take place under the IRB approach.

However, the advent of a more integrated interbank market has alleviated concerns of excessive concentration in the euro area. Furthermore, in the euro area the share of transactions with a maturity of less than three months is around 80% in the most common

unsecured interbank lending transactions. These exposures would benefit from the favourable treatment under the second option, since the risk weight would be limited to 20% for all short-term exposures that are either unrated or rated above BBB-. According to Table 2, practically all the short-term interbank loans of euro area banks should fulfil this condition, since most participants other than the major and higher-rated wholesale interbank market players (EONIA banks) do not possess a rating and would therefore carry the risk weight of 20%. Finally, the relatively few longer-term loans that would be affected might be replaced by shorter-term contracts. In general, the capital alleviation for short-term exposures could significantly mitigate effects on the allocation of interbank activity.

Thus, from a euro area perspective, the choice between the options would probably not be very relevant in terms of affecting interbank market patterns, and the overall impact of the new Accord in this respect would be likely to remain limited. The first option within the standardised approach may, however, lead to situations of lending money to high-risk banks while making a low capital charge. This could weaken the appreciation of counterparty risks by lending banks. The second option might be more beneficial in this respect and could also weaken the assumption that banks will be supported in times of stress, since the focus is on banks rather than on sovereigns.

Table 2
Euro area banks by rating category (December 2000)

External rating grade	Risk weight (%) ¹⁾	Risk weight, short-term (%) ^{1) 2)}	EONIA banks ³⁾		Other 300 largest banks (i.e. other than EONIA)		Total	
			No. ⁴⁾	LS (%) ⁵⁾	No.	LS (%)	No.	LS (%)
AAA to AA-	20	20	18	51	16	11	34	38
A+ to A-	50	20	17	38	45	15	62	30
BBB+ to BBB-	50	20	1	1	5	1	6	1
BB+ to B-	100	50	0	0	0	0	0	0
Below B-	150	150	0	0	0	0	0	0
Unrated	50	20	10	10	234	73	244	31
Total			46	100	300	100	346	100

Source: Fitch/BCA BankScope.

1) Risk weights under the standardised approach, Option 2 (based on bank ratings).

2) Short-term claims are defined as having an original maturity of three months or less.

3) EONIA (euro overnight index average) banks represent the main banks active in the euro area interbank markets. (The table depicts the EONIA banks of euro area origin.)

4) No. = Number of banks in a rating grade according to Standard & Poor's long-term debt ratings.

5) LS = Liability share of the banks in total interbank liabilities.

4 Contribution of the supervisory review process and market discipline to banking soundness

4.1 Effective implementation of the supervisory review process

The supervisory review process (Pillar 2) involves supervisors' assessment of the appropriate level of banks' capitalisation. This would be based on a variety of factors, including the experience and quality of the bank's management, its risk appetite and the adequacy of its risk management systems and controls. Supervisors should be able to take corrective action, when deemed appropriate. Hence, the role of supervisors is enhanced substantially.

The consultative package is not very specific, however, in giving *guidance on supervisors' action*. The considerable resource needs and the complexity of the process could limit the role of the supervisory review process. In any case, the effective implementation of Pillar 2 might require upgrading of supervisory capacities in some countries, or the elimination of any legal constraints on exercising discretion by supervisors.

A second concern is that subjective elements within the IRB approach and the supervisory review process could distort *international equivalence* in the application of capital

standards. This is especially so because supervisory practices vary a great deal from country to country in any event. Unless more specific standards and co-ordination between authorities were endorsed, it would be difficult to secure an internationally consistent application of the new Accord. This is, in a way, a "rules versus discretion" issue, since the more flexible implementation associated with a greater recourse to discretion has to be balanced against the drawbacks brought about by national discrepancies in the implementation of the new Accord.

The EU represents a specific case for international co-ordination, because of the harmonised Community legislation for banking (and for securities and insurance) and the already substantial integration of money and capital markets since the introduction of the single currency. In this more integrated environment, convergence in supervisory practices would be particularly important. The Economic and Financial Committee's report on financial stability (April 2000) also highlighted the desirability of supervisory convergence. The issue has already attracted considerable attention in the main EU supervisory fora (the Banking Advisory Committee, the Banking

Supervision Committee of the European System of Central Banks and the Groupe de Contact). However, many legal and practical issues would need to be resolved. The work in the EU has so far been mainly focused on the identification of priority areas and on reaching agreement on the main principles for consistent risk assessment methodologies.

4.2 Complementary role of market discipline

For the first time, market discipline (Pillar 3) has been assigned an explicit role in the regulatory framework. Since the capital requirements will be established in a less transparent and more judgemental fashion, involving market participants as “outside reviewers” of banks’ risk management and capital allocation systems may discipline banks and potentially also encourage convergence in supervisors’ approaches to individual banks. Since the new Accord strengthens the connection between the reported regulatory capital ratio and the underlying risks of banks, the ratio will become more informative. The ratio could thus have an increased effect on banks’ cost of funds and could therefore provide incentives for enhancing risk management and developing adequate capital buffers.

As strongly recommended by the BCBS, *timely and accurate disclosure* is a necessary condition for market discipline. The BCBS seeks the adoption of binding disclosure requirements, with clear remedial actions in the case of non-disclosure and inaccurate disclosure. Requirements would encompass three major areas: capital adequacy and the composition of capital, risk exposures and risk management processes and the scope of application of the new Accord to the various entities of financial groups. Owing to the lack of transparency of the actual rating processes of individual banks, an adequate disclosure of the qualitative features of banks’ internal systems should merit sufficient attention.

The proposals would generally represent an important step forward towards increasing

and improving disclosure. The BCBS proposes a flexible formulation of the disclosure requirements. It recommends that sophisticated international banks make the full range of “core” and “supplementary” information publicly available. All other institutions would have to disclose only core information, if deemed to be material. For smaller banks, the purpose of and need for disclosure should indeed be considered in order to avoid any unnecessary burden.

Progress in accounting harmonisation and “disclosure culture” would be required

A major impediment to the effectiveness of market discipline could be the inadequate international harmonisation of *accounting principles*, which would hamper comparability across banks from different jurisdictions. Even within a quite homogeneous area like the EU, definitions of core items for evaluating banks’ soundness, such as loan-loss provisions and non-performing assets, can differ markedly across countries. Work on these issues is currently under way in the BCBS.

Another hindrance could be the immaturity of the “disclosure culture”. In the EU the *frequency* of banks’ disclosure seems underdeveloped compared with that in the United States. Relying on the information available from commercial databases, which may not present a fully comprehensive picture of the situation, the proportion of listed banks issuing half-yearly accounts in the euro area or the EU, for example, seems to be less than half of that in the United States (see Table 3). As rightly pointed out by the BCBS, annual disclosure is not frequent enough in most circumstances. Moreover, the *content* of disclosure seems to be more extensive in the case of the US banks. For example, the proportion of listed US banks producing information on their problem loans is apparently more than twice as high as that in the euro area or the EU. In addition, other public information for assessing banks’ asset quality is still fairly limited in the EU. The availability of information from non-listed banks, which do not face the stock market-related

disclosure standards or issue other securities market instruments, could be significantly lower than from listed banks. Variations in disclosure requirements from country to country can also be significant within the EU.

As far as the access to disclosed information is concerned, the establishment and use of internet sites is improving the situation. At the end of 2000, a large number of EU banks had already set up sites (see Table 3).

The implementation of the new Accord creates an *opportunity* to improve the situation, which seems particularly important for the EU. This calls for an international effort to achieve more harmonised accounting standards and to strengthen banks' disclosure, as intended by the BCBS. An effective and rapid implementation of the disclosure requirements could face problems owing to the discrepancies in the powers of supervisors to enforce these requirements. Therefore, the proposal in the EU consultative document to ensure that the new framework gives the EU supervisors the necessary legal authority is very welcome. In addition, not only should the level of information increase, but also the differences across borders should be reduced. The effective market discipline in the EU could suffer if some authorities implemented the new disclosure requirements in a less stringent fashion.

Finally, disclosure is not a sufficient condition for market discipline. Banks' stakeholders need to have adequate incentives to monitor banks and impose discipline on managers. An adequate number of creditors who are not covered by deposit insurance appears to be the most important factor generating effective market discipline. These creditors (bondholders and interbank lenders) have the strongest incentives to monitor banks' risk-taking and capital adequacy, and, therefore, to react in terms of a higher risk premium if their credit risk increases. In the recent debate, the beneficial role of subordinated debt is often mentioned, since subordinated debtholders have a junior status and run a more material risk of losing their investment. Shareholders may have an incentive to increase risk-taking themselves, on account of limited liability and adverse incentives related to deposit insurance. However, the importance of this effect may be overstated for banks that are far from economic insolvency. Table 3 indicates that the number of listed banks issuing subordinated debt, and the share of subordinated debt in total assets, are broadly similar in the EU and the United States. Moreover, the number of listed banks is comparatively high in the EU. Hence, from these perspectives (disregarding the structure of security holdings and other governance issues), the preconditions for the functioning of market discipline in the EU might be as good as those in the United States.

Table 3
Disclosure by listed banks in EU countries and the United States (December 2000)

	Number of listed banks	Percentage of listed banks producing:				Number of listed banks that issued subordinated debt	Subordinated debt as a percentage of total assets ²⁾
		Quarterly accounts	Half-yearly accounts	Internet sites	Information on problem loans ¹⁾		
Euro area	230	4.3	33.9	74.8	41.7	147	1.5
EU	343	3.8	34.7	72.9	37.9	201	1.6
United States	235	87.2	88.5	91.5	91.9	217	1.6

Source: Fitch/BCA BankScope.

1) Overdue loans, restructured loans and other non-performing loans.

2) Total subordinated debt divided by total assets of all listed banks.