

**THE NEW BASEL CAPITAL ACCORD
AND THE FUTURE OF THE EUROPEAN
FINANCIAL SYSTEM**

THE NEW BASEL CAPITAL ACCORD AND THE FUTURE OF THE EUROPEAN FINANCIAL SYSTEM

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This report is based on discussions in the CEPS Task Force on the New Basel Capital Accord and the Future of the European Financial System. The members of the Task Force participated in extensive discussions in the course of several meetings since March 2002 and submitted comments on earlier drafts of this report. Its contents convey the general tone and direction of the discussions, but its recommendations do not necessarily reflect a common position reached by all members of the Task Force, nor do they represent the views of the institutions to which the members belong. A list of participants and invited guests and speakers appears at the end of this report.

The rapporteurs of the Task Force are Rym Ayadi, Research Fellow at CEPS and Andrea Resti, Associate Professor of Mathematical Finance at Bergamo University. They wish to thank Frank Dierick, Karel Lannoo, David G. Mayes and Mathias Schmit for their valuable written contributions to the Task Force Report, Frederik C. Musch for chairing the meetings and all the members of the Task Force for their helpful remarks and suggestions.

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Preface

The Centre for European Policy Studies (CEPS), as one of the EU's most important think-tanks, has once again created a stimulating environment for debating different views, during four full-day meetings on the New Basel Capital Accord proposals. The proposals focus on the adoption of more risk-sensitive supervision and the possibility for banks, depending on their levels of sophistication, to use their own risk-management practices in meeting regulatory requirements (subject to certain strict conditions). This constitutes a fundamental change in the approach to bank regulation, but continues a trend that started with the treatment of market risk in 1996. Consultations with a wide range of interested parties made the proposals an ongoing public process from its first announcement in early 1999.

The CEPS Task Force commenced its lively discussions in March 2002 with the participation of a variety of representatives from the banking, securities and insurance industry, as well as academics and interested individuals with a similar background. Many excellent speakers – mainly from Europe, but also a high-quality contingent from the US – provided much-needed insight and perspective. At the outset, the intention was to concentrate on issues that were of special importance to the European Union, but most of the Basel Accord issues turned out to have European dimensions, particularly as the EU will be the widest area of implementation, covering all banks (as well as investment firms authorised under the investment services Directive) and not just internationally active ones. Discussions therefore often focussed on competitive issues for European financial-sector firms.

As the Basel Committee's proposals were amended over time, it is understandable that the focus of the debates of the Task Force regularly changed and topics kept re-emerging in different ways, as new proposals overtook the various discussions or issues were accommodated in later versions of the proposals. This made the process more stimulating for Task Force participants, but it exacerbated the already difficult task of the rapporteurs, Rym Ayadi and Professor Andrea Resti. While the discussions continued over the two years since the Task Force was established, the rapporteurs were shooting at a moving target.

As the process is coming to an end with the likely finalisation of Basel II in June of this year, it can be concluded that the Task Force, in large measures, supported the new Basel framework as it has had a good understanding of the new risk-measurement and management techniques. The report urges the EU to agree on the European capital adequacy Directive implementing the Basel II proposals (dubbed 'CAD III') as quickly as possible.

Discussions by the Task Force concentrated more on a number of relatively thorny issues, such as procyclicality, complexity, small- and medium-sized enterprises and operational-risk calculations, which had created considerable excitement early in the process, but now have become more mainstream in our thinking.

In this report, the two rapporteurs succeed in describing these complex issues and bringing forward general positions of the Task Force on these key issues. For understandable and customary reasons, no positions of individual members, nor majority/minority views, could be mentioned by name.

Frederik C. Musch
Chairman

THE NEW BASEL CAPITAL ACCORD AND THE FUTURE OF THE EUROPEAN FINANCIAL SYSTEM

REPORT OF A CEPS TASK FORCE

RYM AYADI & ANDREA RESTI, RAPPORTEURS

Executive Summary & Policy Recommendations

In adopting the Basel Capital Accord in 1988, the major aim of the Committee on Banking Supervision was to ensure that internationally active banks provide a stronger capital cushion against insolvency. Many market developments since then, however, have brought the inadequacies of the 1988 Accord to light. Indeed, banks had already started to use more sophisticated techniques to manage their credit risk, which allowed them to safely reduce the amount of capital needed. At the same time, there was an explosion in the use of instruments for credit-risk transfer, including securitisation and credit derivatives, which have allowed banks to trade their credit-risk exposures. The existence of a considerable gap between supervisory requirements and risk-based measures of economic capital at the end of the 1990s led to forms of regulatory arbitrage. Furthermore, the inability of the 1988 Accord to differentiate between investment-grade and junk borrowers might have also made some financial institutions more risk-prone instead of helping them to control their risks. A revision of the 1988 Accord was thus urgently needed, after a first step was taken in 1995 with the amendment to the treatment of market risk.

In 1999, the Basel Committee issued a proposal for a new capital adequacy framework based on three mutually reinforcing pillars: minimum capital requirements, supervisory review and market discipline. This proposal took into account the new risk-management techniques and sought to fill the gap between economic and regulatory capital. To make the New Basel Capital Accord robust in its structure and parameters, the Basel Committee engaged in an active dialogue with bankers, national regulators, experts, academics and other market participants to work together to complete the final Basel regulatory framework for approval and international implementation by the end of 2006.

In Europe, important changes in the regulatory framework were mainly related to the ongoing Financial Services Action Plan (FSAP). Being part of the various initiatives taken in the FSAP, the Basel II Accord will be implemented at EU level as a single directive that will amend 2000/12/EC and the capital adequacy Directive, and is referred to as 'CAD III'.

CEPS chose to contribute to the ongoing debate by organising a Task Force on the New Basel Capital Accord and the future of the European financial system. The conclusions of the Task Force are summarised below.

1. The Basel II process

Regulators need to come to a final agreement on the new Accord and should not let uncertainty linger. The new capital adequacy framework suits the needs of European banks and investment firms as it improves the alignment of regulatory capital to the underlying risk they face, and thus reduces the incentives and the scope of capital regulatory arbitrage. A more risk-sensitive regulatory framework is beneficial to ensure a safe and sound banking system, provided that complexity and sophistication can be kept under control.

A balanced focus between the three pillars of the new capital adequacy framework is needed. Since the beginning of the revision process to the New Basel Capital Accord, a tremendous effort has been devoted to the first pillar, since it contains precise, quantitative rules for computing the new minimum capital requirements, but much less focus was dedicated to the second and third pillars. Clarity of rules under the first pillar may, however, be undermined by the discretionary behaviour of regulators under the second pillar and the ineffectiveness of the third pillar. We strongly support clear-cut principles to define the relationship between banks and supervisors, and a stronger and more credible form of market discipline. This will be a major implementation challenge.

A consistent cross-border application of the new Accord is the key to preserving the level playing field. Home and host-country supervisory authorities need to cooperate closely to ensure the consistent application of the new Basel framework. In this matter, the Basel Accord Implementation Group (AIG) should play a key role, although its principles leave too much room for the host country. This cooperation must be also extended to other financial authorities and standard-setters, including the International Accounting Standards Board (IASB) and the International Association of Insurance Supervisors (IAIS), to ensure the convergence of the new Basel rules with the new international accounting standards and with the new solvency rules for insurance. The use of national discretion should be handled restrictively so as to minimise the problem of competitive distortions and reduce the costs of complexity.

An adequate calibration of the new capital adequacy framework needs to be ensured. Extensive analysis revealed some limitations of the third quantitative impact study (QIS-3) results, suggesting caution with interpretations. Consequently, there is a need to improve these results, particularly after the endorsement of the new treatment of expected and unexpected credit losses in the internal ratings-based approach, in order to assess the real impact of the new capital rules on the European banking system. We encourage field tests to ensure that the Accord is correctly calibrated on a continuous basis.

2. The EU CAD III process

The EU has a showpiece role in the implementation of the new Accord. The EU will be the first ‘critical mass’ of countries to implement the Accord and will thus have to make sure that it works. At the same time, the EU should not act in isolation given the global nature of the Accord and the financial industry. With the creation of the new regulatory and supervisory Committees, the structure is in place to allow for a consistent and harmonious implementation of the Accord across countries, and to accommodate any required changes quickly. Yet the work will be complex and demanding, and some issues will need to be resolved in a European spirit, such as home and host-country cooperation, the consolidation of capital and the supervisory discretion under the second pillar. The medium-term ambition should be a single European banking rule book.

Fair competition should be preserved between those banks that are internationally active and small- and medium-sized European banks (SMBs). The survival of SMBs as independent entities could be somewhat endangered by the fact that the implementation costs of the new rules are often fixed and can be more easily absorbed by larger institutions (although large, diversified international groups may incur higher validation costs having to satisfy multiple jurisdictions). To keep compliance costs reasonably low, SMBs are likely to adopt the standardised approach (as anticipated by the results from the European Commission’s third quantitative impact study), and to suffer from a potential adverse-selection effect by orienting their exposures towards a high-risk borrowers’ profile; however, this approach could be adopted only as a transitory method while preparing the ground for more sophisticated risk-management

tools. In fact, to avoid adverse-selection effects, SMBs should be stimulated and helped to develop and implement modern and efficient risk-management systems.

An adequate and fair treatment of the small- and medium-sized enterprise (SME) portfolio needs to be ensured in Europe. The favourable treatment of the SME portfolio under the new regulatory rules was theoretically defensible since SMEs were shown to have a lower default correlation than larger companies. Empirically, research has yielded mixed findings, implying the likely unfair treatment of larger enterprises. We call for more empirical research on this issue to ensure the empirical validity of the underlying assumption behind the Basel Committee's decision for Europe.

The awareness of European SMEs about the new financing conditions needs to be increased. The new regulatory rules will certainly impact the credit conditions for SMEs but not necessarily by leading to a reduction of the credit supply available to these entities. The more risk-sensitive pricing introduced by these rules will entail a certain variability of capital adequacy, depending on the individual quality of the borrower. Adopting one of the internal ratings-based (IRB) approaches entails relying on a set of quantitative and qualitative information to be provided by European SMEs and other client groups. This information is the key to running the internal rating systems properly. Hence, it is important that companies understand and adjust to the new rating culture. For that, the cooperation and the exchange of information between SMEs and lenders need to be encouraged.

The new regulatory rules should not inhibit alternative financing sources for European SMEs. The availability of different sources of financing for SMEs prevents banks from having a dominant position and could also be an adequate response to tackling information asymmetries along with some of the potentially adverse implications of the new capital adequacy rules. Among others, leasing is one of the most-used external financing sources by European SMEs after bank-loan financing. Yet the treatment of the leasing business under the new regulatory rules is somewhat penalising, although it is a relatively low-risk business. A wider recognition of physical collateral would not only allow a better reflection of the relatively low-risk profile of lease exposures but also contribute to reducing the significant gap in capital requirements arising from the three approaches of the proposed framework. Also, equity financing through private equities and venture capital could be another important potential source of financing for innovative SMEs. Nevertheless, the treatment of such exposures under Basel II is somewhat restrictive and ignores the benefits of diversification that arise from pooling various risks into a fund or a fund of funds.

Adequate defences to counter procyclicality should be put in place. Procyclicality results directly from the risk sensitivity of the new Accord, but volatile regulatory capital requirements could be detrimental to financial stability. Although it should be noted that banks themselves already manage the volatility in economic capital and loss, the Basel Committee has addressed this issue in several ways, such as the flattening of the risk weight curve and the introduction of requirements for bank stress-testing. Yet, the smoothing effect is only very modest if one wants to avoid significant distortion relative to capital charges across borrowers. Hence, efforts should continue to monitor the procyclical effects of the new Accord. Dynamic provisioning is one alternative solution to cope with this in the European context. The underlying principle is to build up a provision in an economic upturn that could be drawn upon in an economic downturn when expected losses exceed actual ones. Dynamic provisioning should lead to lower volatility in a bank's profit and loss figures, thus reducing procyclicality concerns. A crucial factor in the success of this technique is the reliability and objectivity of the estimates of expected losses.

THE NEW BASEL CAPITAL ACCORD AND THE FUTURE OF THE EUROPEAN FINANCIAL SYSTEM

REPORT OF A CEPS TASK FORCE

RYM AYADI*

Introduction

Almost five years of negotiations within the Basel Committee seem to have finally produced a broader and more substantive regulatory framework for internationally active banks that aims at underpinning banking solvency. Several delays have slowed down the process owing to the concerns that have been raised during the consultation period, which led to a fairly high number of issues to be resolved. Some of the issues have already been solved, such as the treatment of expected and unexpected losses and the issue of home and host country operational-risk capital. Other issues, such as the treatment of the trading book and credit derivatives, are still under revision and are unlikely to be included in the document that is to be finalised by mid-2004 for implementation at the end of 2006. It is even expected that this will give rise to some advanced versions of Basel II.

The New Basel Capital Accord introduces an evolutionary and flexible approach to banking supervision, which reflects the rapid progress and sophistication of banking practices and risk-management techniques. By aligning supervision and regulation with these techniques, the proposed new capital framework not only provides strong incentives for banks to continue improving their internal risk-management capabilities but also gives the necessary tools to supervisors to enable them to react to any emerging matter that occurs and thus reduces the regulatory arbitrage opportunities that the existing rules create.

Indeed, Basel II contains a number of new aspects to the regulation and supervision of banks structured around three pillars: minimum capital requirement, supervisory review and market discipline. The main novelties in the first pillar are the variety of approaches it includes, such as the introduction of a more risk-sensitive framework based on sophisticated risk-management techniques and a new capital requirement for operational risk. The second pillar requires supervisors to ensure that each bank has sound internal processes in place to adequately assess their risks. Finally, the third pillar aims at reinforcing market discipline through enhanced disclosure by banks.

Although the focus of the new Basel Accord framework is primarily on internationally active banks, the variety of approaches offered under the first pillar are intended to be suitable for application to banks of varying levels of complexity and sophistication. The risk weights will be refined by reference to a rating that is provided by either an external credit assessment institution under the standardised approach, or produced internally by a bank risk-management system under the internal ratings-based approaches. Calculating the right risk weights under the most advanced approaches will not only depend on developing a sufficient awareness and expertise in risk evaluation for those banks that have not been able to use the most sophisticated risk-management tools so far, but also on the inability of other banks to manipulate their internal ratings systems in a manner that underestimates their credit risks. For the first kind of banks, the costs associated only with regulatory compliance are difficult to estimate and to

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dissociate from those costs that are inherent to upgrading their internal risk-management systems. For the latter banks, it is very likely that the development of more sophisticated risk-management tools will lead to increasing complexity for the monitoring of these institutions.

Under the proposed new Accord, most of the burden of controlling banks' internal risk-assessment is placed under the second pillar. Supervisory authorities are certainly facing an important challenge to efficiently monitor different kinds of banking institutions. They are expected to build a substantial quantitative and qualitative expertise and to work closely with banks. Finally, market discipline has to be viewed as an important mechanism to induce banks to hold sufficient capital in relation to the risk taken. Effective market discipline requires not only that relevant information is available to investors but also that it is possible to use this information to discipline a bank that releases negative information or abstains from releasing positive information.

At the European level, the Basel framework offered a substantial background to revise the EU Directive on capital adequacy. As the EU process is moving in parallel with the Basel process, it is facing the difficulties inherent to the finalisation of the Accord itself and the problems of ensuring that the new directive meets European needs. The European implementation of the new Basel Accord has become an important issue, where European specificities have to be taken into account. All European banks and investment firms with varying levels of sophistication fall under the new banking regulation, which will be transposed into European law. Under this scope of application, the European approach to implementing the new Accord is challenging. Indeed, besides the main objective of requiring all banks to maintain adequate levels of capital to safeguard the stability of the overall financial system, it requires a large amount of flexibility, as it should fit small-, medium-sized and large banks as well as investment firms. Moreover, it should consider very closely the 'level playing field' principle as European banks need to be subject to equivalent regulations whether they are small-, medium-sized or large banks, non-banks, specialised or diversified banks. And finally, it should promote convergence to reach the objective of creating a single European financial market. The reconciliation of these objectives is crucial to promote financial stability and long-term economic growth. Some actions have been already taken to prepare the ground for the successful implementation of the New Basel Capital Accord. The creation of the Committee of European Banking Supervisors (CEBS) is intended not only to enhance the cooperation between national supervisors, but also to help incorporate technical changes more easily.

For the time being, it is difficult to make an exhaustive evaluation of the new capital adequacy Directive. But at first glance, a more risk-sensitive calibration and a more obvious linkage between banks' own risk-management and mitigation techniques and regulatory capital requirements may give a natural incentive to banks to implement the most sophisticated tools to manage their risks. Nevertheless, it is important to proceed with a cost-benefit analysis, particularly for small- and medium-sized banks that may or may not have the necessary resources to implement such onerous tools. Moreover, if these costs are passed on to consumers and SMEs, their financing conditions may deteriorate and in turn hinder their growth. Finally, being more risk-sensitive, the new rules may exacerbate the cycle in a downturn when banks opt for a restrictive loan policy.

By addressing these issues, the purpose of this report is to provide a detailed, up-to-date and critical analysis of the New Basel Capital Accord framework. It also focuses on the limitations and pitfalls that may deserve further investigation, particularly at the European level. Moreover, it provides a provisional assessment of its effects on small- and medium-sized European banks, as well as small- and medium-sized European enterprises. Moreover, it examines the procyclicality of the new Accord and offers mechanisms to counter it. Finally, it addresses the challenges of implementing the new rules at the EU level.

Chapter 1

The Architecture of the New Basel Capital Accord From Basel I to Basel II

Andrea Resti*

1.1 From Basel I to Basel II

During the last fifteen years, the 1988 Capital Accord dealing with minimum capital requirements for internationally active financial institutions has grown more and more pervasive, and has been integrated into the national regulations of most advanced countries. Meanwhile, the limitations and drawbacks of the simple rules on which it is based have become increasingly apparent: namely, the existence of a considerable gap between supervisory requirements and risk-based measures of economic capital, which has led to forms of regulatory arbitrage (whereby loopholes in the regulation have been exploited to increase the real leverage of a bank without reducing its capital ratios). Paradoxically, the inability of the 1988 protocol to discriminate between investment-grade and junk borrowers might also have made some financial institutions more likely to take risks, instead of helping them to control their risks.

To address such challenges, the Basel Committee on Banking Supervision has been engaged for several years in a revision process that will finally lead to a New Basel Capital Accord (NBCA). Remarkably, the contents of the new Accord have been thoroughly discussed among national supervisors, banks, academics. Thus, the drafting of NBCA has become a meeting point for many different perspectives: legal experts, accountants, bank managers, central bankers and finance scholars have been working together, merging their professional backgrounds to make the NBCA more robust in its structure and parameters.

1.2 Overall structure of the NBCA

According to the current draft of the NBCA,¹ bank supervision will be based on three components (the three pillars of the Accord): minimum capital requirements, supervisory review (section 1.7) and market discipline (section 1.8).

Although all of them are equally meaningful in supervisors' eyes, most comments and criticisms have focused on the first pillar, since it contains some precise quantitative rules for computing the new minimum capital requirements, and any change in such rules is likely to have a deep impact on bank leverage, profitability and the price of bank credit for non-financial companies.

The computation of the minimum supervisory capital under the first pillar will be based on the sum of the capital requirements originating from: 1) credit risk, 2) market risk, and 3) operational risk. Although no major change is being added to the computation of market risk capital, the New Basel Capital Accord profoundly redefines the mechanisms for the

* Andrea Resti is at the University of Bergamo. He is especially thankful to Ole Bus Henriksen, Bernhard Speyer and Peter Konesny for their valuable suggestions on a previous draft. Useful additions from Victor Dowd on operational risks are gratefully acknowledged.

¹ All references to the NBCA in this report are based on the third consultative paper issued in April 2003 (Basel Committee, 2003a).

computation of credit risk, while it also introduces a set of minimum capital requirements against operational risk (which has hitherto been unknown to risk-capital regulation).

Operational-risk capital will be briefly covered in section 1.5. The following paragraphs instead focus on credit-risk capital. In this area, the NBCA marks a break with the past, since loans issued to similar counterparts (e.g. private firms or sovereigns) will require different capital coverage depending on the level of intrinsic risk, as evaluated by some external ratings institutions (standardised approach) or by the bank itself (internal ratings-based or IRB approach).

1.3 First pillar: Standardised approach

In the standardised approach, the amount of capital required on an unsecured €1 loan to a private firm – now fixed at 8 cents (8% x €1) – could decrease to 1.6 or increase to 12 cents, based on the ratings issued by the so-called ‘external credit assessment institutions’ (ECAI).

These can be rating agencies, as well as other evaluators accepted by national supervisors (e.g. export credit agencies). Yet to comply with Basel II, rating providers will have to satisfy a set of minimum prerequisites (mainly concerning the transparency and consistency of their rating criteria). A bank will be allowed to use the ratings of more than one ECAI, but some precise rules will prevent any opportunistic (‘cherry-picking’) behaviour. Thus, banks will not be allowed to choose, for each customer, the rating source assigning the most favourable judgement (thereby reducing the total amount of regulatory capital).

Better ratings will bring about lower weights in the computation of risk-weighted assets; moreover, as in Basel I, different categories of counterparties (e.g. non-financial firms, states or banks) will receive different sets of coefficients. This is summarised in Table 1.1, where ratings by Standard and Poor’s are used as a sample scale.

Although the table may look complex at first glance, its meaning is quite intuitive: rows indicate the different classes of borrowers identified by Basel II (corporates, sovereign entities, banks, small firms and individuals labelled as ‘retail’) plus some specific facilities. Columns report the various ratings that can be assigned to a counterparty. Combining rows and columns one sees that, for example, a €100 loan to a AAA-rated non-financial company will translate into €20 of risk-weighted assets, and will therefore lead to a capital requirement of $20 \times 8\% = \text{€}1.6$ (in other words, 1.6% of the unweighted exposure). Similarly, a €100 facility offered to a sovereign state with a rating lower than B- will give rise to a €150 risk-weighted exposure, hence requiring a capital coverage of $150 \times 8\% = \text{€}12$ (12% of the face value).

The last two columns need some brief clarifications. First, unrated exposures (where no ECAI-issued rating is available) will usually be weighted at 100% (as in the present Accord); note that this is likely to apply to most European non-financial firms (although some of them will have access to better treatment if included in the retail portfolio, as explained below). Second, past-due loans (where a delay of more than 90 days has occurred on any payment) will usually be weighted at 150% (like the worst-rated classes), as payment delays could signal that the borrower is experiencing solvency problems.

Table 1.1 Risk weights in the standardised approach

	AAA	AAA-	AA+	AA	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	Below	Unrated	Past due
<i>Corporate</i>	20%			50%			100%				150%				100%	150%				
<i>Sovereigns</i>	0%			20%			50%				100%				150%	100%	-			
<i>Banks</i>	20%			50%				100%				150%				50%	-			
<i>Banks, based on their country of incorporation</i>	20%			50%			100%				150%				150%	100%	-			
<i>Retail</i>	75%																		150%	
<i>Residential mortgages</i>	35%																		100%	
<i>Commercial real estate mortgages</i>	From 100% to 50%, according to national supervisors																		150%	

Note: Ratings by Standard and Poor's have been used as a sample scale.

Some rows in the table also deserve a few quick comments. First, two alternative treatments are available for bank exposures: in fact, these can be ranked according to either their own individual ratings or the ratings issued to the countries where the banks have their legal headquarters.¹ According to the latter option, all banks incorporated in the same country will be assigned the same risk weight (e.g. 20% if they are based in a country with a rating of at least AA-). Secondly, retail exposures (i.e. exposures smaller than €1 million issued to individuals and small firms) will form a separate portfolio, including rotating exposures such as credit cards and overdrafts, instalment loans and leasing (provided that no single borrower accounts for more than 0.2% of the retail portfolio itself). Retail exposures will almost certainly be unrated; however, since they are highly granular and therefore help diversify credit risks, they will be granted a reduced risk weight of 75% (a €100 loan hence becomes a €75 risk-weighted asset). Finally, as in the present Accord, residential mortgage loans will be given a lower risk weight (but the current coefficient of 50% will be cut further, to 35%); moreover, national supervisors will also be allowed to assign a reduced risk weight (although no lower than 50%) to loans secured by commercial real estate, provided that the value of such collateral is subject to a limited market risk.

In addition to residential and commercial real estate, other types of collateral are acceptable in the standardised approach. Two approaches are possible, in increasing order of complexity: the so-called ‘simple approach’ applies to a wide range of financial collaterals (cash, gold, debt securities, some qualified shares and mutual funds investing in the above-mentioned instruments), while the ‘comprehensive approach’ also holds for all listed shares. In the simple approach, the portion of the exposure covered by recognised collateral receives the risk weight applicable to the collateral itself, not to the original borrower (subject to a floor, usually, of 20%). In the comprehensive approach, no capital requirement is applied to the collateralised portion of the exposure, but the value of the collateral must be reduced by a haircut, reflecting the risk that the market value of the financial instrument pledged by the borrower may decrease before it is revaluated or remargined (haircuts tend to be different based on the historical volatility of the securities pledged as collateral, and are scaled up as the number of days between remargining or revaluation dates increases).

To mitigate risks, personal guarantees and credit derivatives are also acceptable, provided that they are issued by states and other public sector entities, banks and other regulated financial firms, or non-financial companies with a rating of at least A-. When such guarantees are present, the risk coefficient of the borrower is replaced by that of the guarantor, usually leading to a lower risk-weighted asset.

1.4 First pillar: Internal ratings-based approach

If a bank chooses (and is allowed) to create its own rating system (instead of depending on external agencies), the capital against each credit exposure will be a function of five basic parameters:

1. the PD (probability of default) of the borrower;
2. the expected loss rate in case of default (LGD, loss-given default);
3. the exposure at default (EAD), which may differ from the current exposure, for example if committed undrawn margins are present;

¹ National supervisors will opt for one of the two treatments and this choice will apply to all regulated entities.

4. the maturity (m) of the loan, which increases the possibility that the original probability of default be revised and possibly increased; and
5. the degree of diversification and correlation (ρ) of the credit portfolio to which the exposure belongs.

In the simplified, or ‘foundation’ IRB approach, banks are responsible only for measuring (in a transparent and reliable way) the probability of default of their borrowers, while the other four components are set by the supervisors. In the ‘advanced’ approach to internal ratings, on the other hand, banks are required to estimate all risk profiles (except the degree of correlation), but will have to convince supervisors that such estimates are based on a wide empirical dataset, and are consistent with their own loss experience over the previous years. Note that the degree of correlation of the overall credit portfolio is always set by supervisors. Table 2 shows more details on the estimation/computation of the above-mentioned risk factors.

The risk parameters of each loan (PD, LGD, EAD, maturity and correlation) are turned into a capital requirement by means of a formula based on a simple credit-risk model.² Capital ratios increase linearly with LGD and EAD, and less than linearly (although quite steeply) with default probability.³ The bank’s final capital target is then computed simply as the sum of all individual requirements: this means that ‘sub-additive’ portfolio models,⁴ like credit VaRs, are not admitted; however, the correlation parameters fixed by the Basel Committee (see Table 1.2) take lower values for portfolios made up of small- and medium-sized enterprises or individuals, accounting for the fact that a higher granularity of the exposures helps diversify total risks. Unfortunately, these correlation values are the same for all banks and do not reflect the individual characteristics of each bank’s loan portfolio (e.g. the fact that it may be highly concentrated in a limited number of countries or industries or both). Such bank-specific concentration risks will therefore have to be addressed by national supervisors, under the second pillar of the Accord.

² An extensive presentation of the regulatory formulae for capital computation can be found in a previous CEPS report (see Resti, 2002).

³ Note that the Basel Committee is still revising the formulae for the computation of capital requirements. Namely, the Committee has recently decided (Basel Committee, 2003d) that only unexpected losses will have to be covered through capital, while expected losses will be faced by means of general or specific provisions. This marks a clear break with the Committee’s original position and addresses the objections raised by many research bodies (see Resti, 2002) and practitioners.

⁴ A risk measure is said to be ‘*sub-additive*’ if the total risk (therefore also the total capital requirement) of a pooled loan portfolio is less than the sum of the risks (and capital requirements) of the individual loans. Note that since different loans tend to be imperfectly correlated, thereby allowing for some risk diversification, sensible risk measures always tend to be sub-additive.

Table 1.2 Risk factors included in the internal ratings-based (IRB) approach

Factor	Meaning	Computation in the foundation approach	Computation in the advanced approach
PD	Probability that the borrower is unwilling or unable to pay	The PD must be computed over a one-year risk horizon, accounting for possible deteriorations in the borrower's creditworthiness in the medium to long term.	
LGD	Loss rate in the event of default	<p>The LGD is fixed at 45% for all senior, unsecured exposures. This value must be raised to 75% for subordinated exposures, but can be adjusted downwards when some recognised collateral is pledged against the loan.</p> <p>When the collateral is an eligible financial instrument, the LGD can be reduced down to 0%, based on the value of the collateral and on a system of regulatory haircuts. Three types of non-financial collateral are also accepted: receivables, real estate (commercial and residential) and other collateral (including physical capital, but excluding any assets acquired by the bank as a result of a loan default). These non-financial collaterals may drive the LGD down to 40% (35% for receivables and real estate).</p>	Banks will be allowed to use their own estimates of LGDs, provided that they can persuade supervisors that their models are conceptually sound and consistent with their past experience. LGDs will have to be assessed in an economic sense rather than from a mere accounting perspective: when measuring recovery rates, all relevant factors that may reduce the final economic value of the recovered part of the exposure must be taken into account. This includes the discount effect associated with the time elapsed between the emergence of the default and the actual recovery, but also the various direct and indirect administrative costs associated with collecting on the exposure.
EAD	Exposure at default	EAD is computed at 100% of current exposure, plus 75% of undrawn irrevocable commitments. Off-balance sheet exposures will have to be converted into credit equivalents by means of standard credit-conversion factors.	Banks will be allowed to use their own estimates of EAD, provided that they can persuade supervisors that their models are conceptually sound and consistent with their past experience.
Maturity	Time to maturity of the loan	Maturity is conventionally set at two and a half years.	Maturity must be computed as a zero-rate financial duration and will be capped at five years. Maturities shorter than one year will be allowed only in very specific cases.
Correlation	Correlation between the changes in the value of the assets of any two borrowers in the loan portfolio	<p>A rather high correlation (24%) is used for loans to highly-rated, large non-financial firms (the so-called 'corporate' portfolio); this is owing to the fact that such companies are supposed to fail mainly because of systemic shocks (that tend to hit all obligors at the same time). The correlation grows lower (from 24% to 12%) as the borrower's rating worsens: in this case, in fact, idiosyncratic factors are thought to be the main driver behind default risk.</p> <p>The two extreme values seen above (24% and 12%) are scaled down, towards 20% and 8% respectively, when the borrower's turnover is less than €50 million. This is because small firms, too, are supposed to be affected mainly by idiosyncratic risks.</p> <p>Correlations grow even thinner (17% for highly-rated borrowers and 2% for low-rating counterparties) in the case of loans to individuals and small firms included in the 'retail' portfolio. For the so-called 'qualifying revolving-retail exposures' (mainly credit cards and overdrafts issued at a very high interest rate), the correlation coefficients for high and low-quality borrowers range from 11% to 2%. Finally, a fixed correlation of 15% is used in the case of residential mortgages.</p>	

1.5 First pillar: Operational risk

The new capital requirements will not be limited to credit risk (as in the 1988 Accord): a considerable amount of capital will have to be held against operational risk (i.e. the risk that flaws in a bank's own systems or human resources, as well as external events, may cause unexpected losses, such as those related to mass litigation, fraud or natural catastrophes). This section briefly reviews the main concepts introduced by the NBCA.

A uniform risk-measurement scheme for such a wide-ranging class of risks as operational risks could not be easily designed. As in the case of credit risk, the Basel Committee had to adopt an 'evolutionary' approach, indicating three different methodologies, ranging from the simplest to the most complex.

Under the first approach ('basic-indicator approach') banks are required to hold a capital cushion against operational risks equal to 15% of their total gross income (measured as a three-year moving average); this just reflects the fact that larger banks are subject to a higher amount of risk. This methodology can be easily implemented, but looks very simplistic and lends itself to much criticism. On one hand, it does not account for the fact that some business areas in a bank are more prone to operational risk than other ones (e.g. securities-trading involves high margins of uncertainty relating to possible human errors, to frauds and to the risk of a computer crash, while the traditional deposit-raising business is based on simpler, slower, more reliable procedures). On the other hand, this approach does not, by any means, 'reward' banks that engage in better (hence, more expensive) risk-control procedures.

To address the first critique, the NBCA includes a second approach, the so-called 'standardised approach' (note that this is not, in any way, related to the standardised approach to credit risk). Under this methodology, the banks' gross income is split among eight business lines: corporate finance, trading and sales, payment and settlement, commercial banking, agency services, retail banking, asset management and retail brokerage. For the first three lines, which are supposed to be more exposed to operational risks, the 15% coefficient is raised to 18%; symmetrically, it is lowered to 12% for the last three, which are thought to be less risky.

Although an adjustment to the coefficients may appear to address the problems connected with the basic indicator approach, it is neither a complete nor fully satisfactory solution. Actually, for a bank to adopt the standardised approach, it must comply with a strict set of entry criteria: this means a bank will have to make significant investments without receiving any expected *a priori* benefit (and in the case of intermediaries specialising in the business lines of corporate finance, trading and sales or payment and settlement, the bank must make an extra investment *to receive a higher capital charge*).

The second objection is addressed by the so-called 'advanced approach'. While the structure of the advanced approach to credit-risk measurement is clearly defined by the Committee (see Table 2 above), in the case of operational risk the parameters and the criteria for the 'advanced' computation of regulatory capital are not explicitly stated by the regulators. Rather, a list of requisites is provided, which banks will have to satisfy if their systems are to be validated for capital adequacy purposes. Thus a qualifying advanced approach must deal with a minimum set of operational loss types, must measure each risk factor in a reasonably detailed way, must estimate capital in such a way that both expected and unexpected losses are covered, and must be based on a wide empirical database and on sound analytic processes.

Two objectives drive the choice of the Committee to avoid specifying a well-structured measurement scheme, but simply indicate some minimum requirements instead. First, the NBCA accepts the fact that the current state of the art of operational risk measurement models is rapidly evolving; therefore, it should not be 'frozen' into a regulatory scheme that would soon become outdated. Second, the 'open architecture' of the advanced approach should work as an

incentive for banks to invest in new operational risk management tools, without being bound by some specific model.

The unparalleled flexibility offered by the Committee, however, is not without problems. Being granted such flexibility, banks are allowed to model operational risk in the manner most appropriate to their own internal needs, i.e. a bank can develop an *enterprise-wide* operational risk model. Yet a bank's business structure may not dovetail exactly with the Basel business lines or may transcend regulatory jurisdictions or both. As a result, a number of significant concerns may emerge, namely: i) how to deal with banking operations located in multiple jurisdictions; ii) how operational-risk mitigation should be addressed; and iii) what is the most appropriate treatment of institutions that are not banks (such as fund managers).

- i) For banks operating in multiple jurisdictions, under the proposed Basel II rules each jurisdiction is able to apply its own rules through the use of national discretion. If the home regulator and each host supervisory body were to apply a set of national rules, then an internationally active bank would be unable to develop and implement an enterprise-wide model for operational risk.

For a large, internationally-active and diversified institution, the request to estimate and possibly hold capital at the subsidiary level would effectively negate the inherent attributes associated with being large, internationally-active and diverse, resulting in a higher capital charge. Further, efforts to develop, validate and seek approval for an advanced measurement approach (AMA) in each jurisdiction would be problematic given the dearth of available data.

If they choose to develop a series of local models reflecting local regulatory needs, internationally active banks would be required to calculate and hold capital at each subsidiary level. This is inconsistent with the principles of the revised Basel accord, which requires capital to be determined at the holding company level.¹

- ii) Let us now turn to the rules surrounding capital mitigation. First and most importantly, mitigation of the proposed capital charge is only possible if the risk-mitigant (i.e. the insurance policy) and exposure are mapped into each other. Secondly, relief through insurance policies is currently capped at 20% of the operational-risk capital charge and no explicit review of this cap is mentioned.²

Moreover, many large credit institutions today manage risks through the procurement of insurance from captives and affiliates. Under the proposed operational-risk mitigation rules,

¹ Consideration of the home-host issue also impinges upon capital relief through mitigation. At an aggregate level, capital relief is limited to 20% of the operational-risk capital charge. It may be possible, however, that the bank's internal capital-allocation mechanism mitigates the capital charge for some areas of the business by more than 20% and less than 20% in others. On a consolidated basis, this would not be significant as the aggregate relief would still be 20%. Nevertheless, where capital and capital relief has had to be determined at the subsidiary level the results would be different. The difference would occur when those entities attracting a capital relief greater than 20% would be capped at 20%. On an aggregated basis, this 'surplus' relief would be lost to the system rather than transferred internally.

² Capital relief through insurance is also dependent on the residual time of the insurance contract, with a haircut being applied to those contracts with a duration of less than one year. The underlying assumption is that insurance contracts are not renewed, whereas it can be shown that in the majority of contracts this is not the case. In addition, the criterion fails to take into account the historic track record of insurance policies. It also detaches capital relief from good operational-risk management, as the availability of multi-year insurance policies is a function of the cyclical nature of the insurance market.

such institutions will not gain recognition for this risk mitigation, even though the judicial use of a captive will give the financial institution access to the re-insurance market.

- iii) The fact that Basel has limited capital mitigation to institutions operating under an AMA regime could have a significant impact on the fund-management industry. The predominant risk faced by fund managers is operational risk, as fund managers have a very limited exposure to market or credit risk. Yet many small- and medium-sized fund management firms appear unlikely to apply for AMA-model approval; this means that fund managers will be disadvantaged, which does raise questions about a level playing field. One solution to this potential problem would be for the European Union to deviate from Basel and allow small- and medium-sized fund managers to use insurance either as a replacement for capital or as a capital mitigant under the less-advanced approaches.³

Finally, one has to keep in mind that the capital charge against operational risks represents a new requirement, above and beyond credit-risk capital. Hence, even if under the NBCA a highly rated loan is likely to command a lower capital charge than the former 8%, the total capital requirement may be higher than in the current Accord, because of the operational-risk component.

1.6 Expected and unexpected losses

By introducing a new standardised approach, as well as rules on internal ratings and operational risks, the NBCA was intended to refine the way risks were measured (and covered) inside banks, *without altering the definition of regulatory capital*. In other words, the Accord was meant to alter the formula for computing risk-weighted assets (the denominator in the so-called '8% formula'), while capital (the numerator) should have remained unchanged.

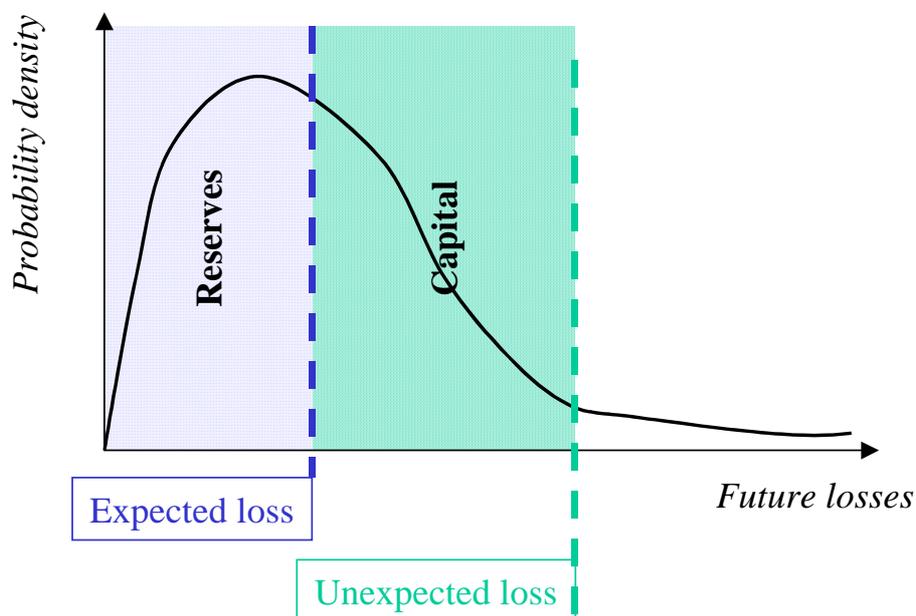
Nevertheless, the Accord's discussion drafts chose to cover all possible losses up to a given confidence level (e.g. up to 99.9% of all possible cases); this meant that bank capital was used to shield both expected losses (ELs) and unexpected losses (ULs) (see Figure 1.1). The regulatory capital to be held against such losses still followed the definition stated in the 1988 Accord, including both shareholders' capital and reserves.

This choice was far from being conceptually correct. As ELs represent the mean of the distribution of future losses, they should be dealt with as a cost, not as a risk: this means that they should ultimately be charged against the current profit and loss account, and held aside as a reserve fund until they are actually incurred.

Unexpected losses, on the other hand, may not materialise for many years, so it would be unnecessarily conservative to treat them as a cost that must be fully covered by a bank's lending rates; to hedge them, banks just have to ask their shareholders to provide them with an adequate amount of capital, so to avoid bankruptcy if actual losses exceed expected ones.

³ Traditionally, fund managers regularly and routinely purchase insurance, either professional indemnity insurance (PII) or bond and fidelity coverage or both. By carefully examining insurance-claim files, it can be clearly seen that fund managers incur losses that Basel would classify as either client, product and business practices, or internal and external fraud. Furthermore, the fraud losses are protected by bond and fidelity coverage whereas client, product and business practice losses are associated with PII.

Figure 1.1 Expected and unexpected losses



Such worries were clearly expressed by several bankers and researchers in their commentaries to the NBCA discussion drafts. A 2002 CEPS research report⁴ argued that the decision not to distinguish between expected and unexpected losses looked unsatisfactory and should be somewhat reconsidered.

In late 2003, as the discussion on the NBCA was close to its final stage, the Basel Committee decided to introduce a clear separation between the EL and UL components of regulatory capital for banks adopting internal-ratings systems.⁵ Under this modified approach, the IRB *capital* requirement is based solely on the unexpected-loss portion of the IRB calculations. Meanwhile, a separate treatment of expected losses was designed, with the objective of ensuring strong incentives for banks to *provision* properly against them.

In practice, banks are now required to compare the IRB measurement of expected losses with the total amount of provisions (both general and specific) that they have set aside. If this comparison produces a ‘shortfall’ (that is, if expected losses exceed total provisions), such an amount will be deducted from capital. If, instead, total provisions exceed the expected loss, such excess will be included in tier 2 capital (as it presently happens for general provisions), subject to a (still undisclosed) maximum limit.

Although this new approach provides a correct incentive for banks to provision against expected losses, such behaviour is encouraged, but not compulsorily required. In other words, banks may still operate with a level of provisions that falls sharply below the expected losses implied by their loan portfolios and cover such a shortfall with shareholders’ capital. In this sense, although the last-minute modification introduced by the Committee goes in the right direction, it still looks only partly adequate.

⁴ See Resti (2002).

⁵ No changes were introduced into the standardised approach.

1.7 Second pillar: Supervisory review

Under the NBCA, regulatory capital represents the main source of risk coverage. Nevertheless, the new Accord states that the ability of a bank to effectively cover its risks also depends on the existence of an adequate risk-management system made up of sound internal-control processes, operating limits imposed on individual desks or business units, reliable provisioning schemes and sensible capital-planning policies. The supervisory review process carried out by national authorities will therefore play a key role under the NBCA, in prompting banks to develop, refine and better use risk-measurement techniques.

This second pillar of the new Accord will translate into four main lines of action. The national regulators will:

- check that the bank's risk-management systems comply with the specifications included in the first pillar of the NBCA (such as transparency, integrity and consistency of the internal rating system);
- evaluate risks that fall under the provisions of the first pillar, but which may be imperfectly estimated by its computation formulae (for example the correlation and concentration effects included in the new Accord through a set of standard values may not be appropriate for individual banks);
- assess risks not included under the first pillar (e.g. the interest-rate risk originated by the different maturity mix of assets and liabilities); and
- evaluate how the economic cycle could affect the bank's future capital adequacy. Such effects will have to be estimated through 'stress tests', simulating how the bank's capital requirements would change if a recession were to occur.

In the prudential supervision process, regulators will: a) verify that each bank has a sound system in place to assess its own capital needs and a sensible strategy to ensure that its capital remains adequate in the future; b) review and validate such a system, taking appropriate steps whenever it is not fully satisfactory; c) if necessary, impose capital requirements above and beyond the regulatory minimum stated in the first pillar; and d) act in a quick and timely manner (asking for prompt corrective actions) to prevent the bank's capital from falling below the minimum threshold suggested by its risk profile.

The enhanced tasks and duties of the supervisory authorities will bring about a sharp need for new, technically skilled staff; thus, investing in human resources will become an issue not only *for banks* subject to the new Accord, but also (and especially) *for supervisors* charged with its implementation in the national jurisdictions. A common technical ground among national supervisors is also required if the Accord is to be applied uniformly across the banking systems of the EU, becoming a driver for integration, rather than introducing new regulatory barriers.

1.8 Third pillar: Market discipline

The third pillar aims at providing the investors with all the relevant information that may help them to assess the risk profile of a bank. They will then be able to discipline banks (by requiring, for example, higher spreads on subordinated bonds) operating with an inadequate capital endowment or an ineffective risk-management system or both. Banks are therefore required to release a set of minimum data, both quantitative (e.g. capital adequacy measures and the main aggregates on which capital computation is based) and qualitative (risk-assessment methodologies and related organisational processes).

To avoid burdening the banks with unnecessary and complex tasks, as well as flooding the market with a flow of unimportant data, the NBCA states that financial institutions will have to disclose only relevant information (i.e. data such that the omission or inaccurate representation

thereof may alter or affect the judgement of the investors relying on them). A list of the main pieces of information that will have to be made known to the public is also provided.

As a rule, the information required by the third pillar must be released every six months (every year for qualitative data concerning the bank's credit policies, reporting and management systems; every quarter for quantitative data on capital ratios and related aggregates). The transparency requirements of the third pillar do not apply to any exclusive or confidential information that, if made known to the bank's competitors, could decrease the value of the bank, reducing its competitive advantage.

1.9 Overview and policy issues

The NBCA aims at closing the gap between economic and regulatory capital. As such, it should be welcomed by all interested parties: not just by supervisors or depositors, but also by bankers who do not want to be crowded out by the unfair competition of institutions operating with an inadequate amount of capital.

Nevertheless, the goal of assessing risk in a more realistic and sophisticated way requires introducing higher degrees of complexity into the measurement system. Moreover, while large banks introducing their own *internal* credit-risk management systems during the 1990s were free to choose the tools more apt to their specific business and to achieve a degree of accuracy that was consistent with their own cost/benefit analyses, the introduction of new risk-assessment tools *for regulatory purposes* is likely to leave considerably less room for flexibility. Such tools may also increase costs in those areas where benefits are less immediate.

To address such concerns, the Basel Committee has assembled a risk-measurement framework that tries to combine accuracy and flexibility, envisaging an evolutionary approach that aims at keeping compulsory costs at a minimum, while designing a road map for banks wishing to evolve towards more sophisticated systems. We believe that such an approach represents a credible and incentive-compatible framework. Yet, as the brief overview of the NBCA presented in this paragraph has made apparent, it suffers from several limitations.

First, the new standardised approach that banks could implement to limit compliance costs marks only a very limited improvement over the previous Accord. Although a number of useful refinements have been introduced, namely on the treatment of risk-mitigants such as collateral and guarantees, the basic structure of the buckets only marginally enhances the banks' ability to match capital and risk. On one hand, most bank loans appear likely to fall into the unrated bucket and retain an 8% capital charge; on the other hand external ratings, when present, will expropriate bankers from their risk-assessment capacity, instead of refining it – and will possibly create the threat of generalised credit crunches against downgraded borrowers.

Such limitations suggest that most banks (or at least a number of large banks accounting for most bank loans) in the industrialised countries will be induced to move to the IRB approach. Within this framework, banks will have to choose whether to adopt some 'supervisory' standard coefficients to assess recovery and exposure risks or to face considerable spending on internal archives and algorithms before they are allowed to independently assess the level of risk of their loans. Even after standing all the costs implied by an advanced IRB system, banks will have to stick to the regulatory measures of concentration and correlation risks; such measures do not create the right incentives for geographic or industrial diversification and – as with the fixed 8% ratio dictated by Basel I – could actually turn out to encourage riskier credit portfolios.

To ensure that banks duly consider all concentration and correlation issues that are not explicitly covered by the first pillar, the NBCA enhances the supervisory powers of national authorities. This choice, however, implies two risks. First, the actual implementation of the new Accord

may evolve in different ways in the different national jurisdictions of the EU. The aim of a level playing field, which was one of the key drivers behind the 1988 Accord, would then be severely jeopardised. Second, as highlighted by the European Shadow Financial Regulatory Committee (ESFRC),⁶ if supervisors become too deeply involved in the measurement and management of credit risks inside individual banks, this might cause ‘regulatory capture’ phenomena: that is, it would be harder for supervisors to stand at arm’s length from the institutions they are supposed to monitor from outside.

Finally, the degree of extra complexity brought about by the new Accord is clearly apparent in the area of operational risks. Here, banks will have to choose between simple capital-computation criteria – which bear only a vague relationship to the actual risk levels faced by a financial institution – and a set of advanced management approaches still under development, representing a long-term investment with benefits and costs that cannot be assessed, even roughly, in advance.

⁶ See ESFRC (2003).

Chapter 2

Lessons from the QIS-3 Results

Rym Ayadi*

The third quantitative impact study (QIS-3) was conducted by the Basel Committee on Banking Supervision to understand the possible effects of the Basel II proposals (as of late 2002) on capital levels across participating banks.¹ This chapter lays out some of the results contained in the report of the Committee’s third quantitative impact study (QIS-3) and the findings of the European Commission’s quantitative impact study, and offers a critical analysis of the potential impact of the New Basel Capital Accord on banks and portfolios.

2.1 Overview of the QIS-3 results reported by the Basel Committee and the European Commission

Since 2001, the Basel Committee on Banking Supervision (BCBS) has conducted three major data collection exercises to gather the necessary information to measure the effects of the new proposals on banks’ capital requirements (across the different risk exposures) and to enable banks to participate and prepare themselves for an efficient implementation. In October 2002, the Committee released the QIS-3 technical guidance that was used by banks to assess the impact of the new Accord on their portfolios. This technical exercise permitted the gathering of the data necessary to gauge the effects of the Accord and to refine the calibration of its proposals. A total of 188 banks from the G10 countries participated in the study, with a further 177 banks from other countries (see Table 2.1).

Table 2.1 Number of banks submitting results for each approach

Approach	G10*	EU	Other**	Total
Standardised	185	166	140	365
IRB Foundation	109	89	28	159
IRB Advanced	57	32	11	74

* The G10 countries are: Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Spain, Sweden, Switzerland, the UK and the US.

** Other countries include: Australia, Brazil, Bulgaria, Czech Republic, Chile, China, Hong Kong, Hungary, India, Indonesia, Korea, Malaysia, Malta, Norway, the Philippines, Poland, Russia, Saudi Arabia, Singapore, Slovakia, South Africa, Tanzania, Thailand and Turkey.

Source: Basel Committee (2003a).

As with previous exercises, banks calculated the capital requirements for consolidated group exposures on a worldwide basis. From a methodological standpoint, the Basel Committee opted for what they called the ‘constant sample analysis’, which is based on having an identical sample of banks submitting results for all three approaches.² Banks were divided into two

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¹ The constant evolution of the Basel proposal implies that the QIS-3 may not be a sufficient indicator of the effect of the present proposal.

² Banks submitting results for more advanced approaches are a sub-sample of those banks submitting figures for more standard ones.

groups: group 1 banks are large, diversified and internationally active with tier 1 capital in excess of €3 billion; group 2 banks are smaller and in many cases specialised.

In the meantime, the European Commission services assisted the Basel Committee in the QIS-3 exercise to produce data on the impact on the banking system of the EU area plus six accession countries. Their methodology was slightly different from that used by the Committee. Besides the constant sample analysis, they chose to perform the complementary sample analysis, which is based on having each bank that participated in the exercise only submitting data on the effects of the approach it would most probably adopt on the implementation date in 2007. This methodology is more likely to reflect the real impact of the new framework on the banking system. Moreover, calculations were based on weighted averages,³ which could provide more accurate indications of the impact of the new capital framework, as they better reflect the differences in size existing between the various national banking systems in the EU and in several accession countries.

2.1.1 Impact on the overall capital requirements for different groups of banks

The QIS-3 results are shown in Table 2.2, in terms of the changes to minimum capital requirements relative to the current Accord – under each approach for both credit and operational risk. (For reference only, the Commission's figures are added in italics.) These results were said to be broadly consistent with the Committee's objectives, mainly to leave the level of capital held by the banking system unchanged while providing incentives to institutions that adopt the more sophisticated approaches. These results are summarised as follows:

- Capital requirements are generally unchanged for large, internationally active banks, irregardless of the approach they adopt.
- The proposals seem to offer an incentive for internationally active banks to adopt the more sophisticated internal ratings-based (IRB) approaches, which could guarantee a slightly lower capital charge.⁴
- For smaller and more domestically oriented G10 and EU banks, capital requirements could be substantially lower under the IRB approaches than current ones.
- In the other countries, there is significant variation depending on the conditions in different markets and the activity focus of the banks.

It should be noted that the average impact figures may hide a significant variation across banking institutions. This was simply explained by the composition of the portfolio, related to the relative importance of retail activity. As the QIS-3 report points out, "banks with a large proportion of retail exposures generally have significantly lower capital requirements under the new approaches, reflecting the generally lower risk in this portfolio". On average, smaller banks experienced the most important reduction in the overall capital requirements, reflecting their higher exposures to retail activity.

For EU banks, the variation measured by the average standard deviation was shown to be increasing with the degree of sophistication of the approach used and decreasing for larger and internationally active banks. This dispersion was attributed to the new operational-risk charge

³ Weighted averages were used as opposed to the simple average of results by individual country that was used by the Basel Committee.

⁴ In its statement, the Basel Committee seems to be unusually conservative, leading to an underestimation of the likely change in overall capital requirements, which could experience a substantial overall reduction and may have potentially adverse consequences for the stability of the banking system (ESFRC, 2003).

that considerably changed the capital requirements for some specialised banks, which prior to Basel II, only faced reduced capital requirements. It is important to mention, however, that banks were confronted with data collection difficulties, particularly with respect to identifying all eligible collaterals. Further, not all banks met the standards laid down by the Committee for setting probability of default (PD), loss-given default (LGD) and exposure at default (EAD), which led to some variation in the results across banks and also to an overestimation of the credit-risk charges under the different approaches.

Table 2.2 Overall percentage change in capital requirements including operational-risk charges

	Standardised				IRB foundation				IRB advanced			
	Average	ASD*	Max.	Min.	Average	ASD	Max.	Min.	Average	ASD	Max.	Min.
G10 group 1	11%	–	84%	-15%	3%	–	55%	-32%	-2%	–	46%	-36%
G10 group 2	3%	–	81%	-23%	-19%	–	41%	-58%	–	–	–	–
EU group 1	6% (8.54%)	(7.47%)	31%	-7%	-4% (1.99%)	12.05%	55%	-32%	-6% (-3.67)	(12.95%)	26%	-31%
EU group 2	1% (-1.07%)	(11.15%)	81%	-67%	-20% (-23.8%)	13.84%	41%	-58%	-22.45% (-17%)	(22.04%)	–	–
Other Groups 1 & 2	12%	–	103%	-17%	4%	–	75%	-33%	–	–	–	–

*Average standard deviation figures provided by the Commission document that indicate the degree to which individual results tend to vary from the average.

Sources: Basel Committee (2003b) and European Commission (2003a).

2.1.2 Impact on the capital requirement across banking portfolios

The results summarised in Table 2.3 show a considerable variation in the extent to which capital requirements will rise or fall under Basel II for different portfolios. This could reflect the relative risk insensitivity of the 1988 Accord (Basel I), which logically leads to requirements that are currently high or low relative to the risk carried within the different portfolios. For instance, retail exposures including small- and medium-sized enterprises (SMEs) and mortgages carry relatively higher risk-weights under Basel I compared with the new Accord, whereas exposures to sovereigns, which are zero-risk weighted under Basel I, will have to carry higher risk charges under Basel II rules. Hence, winners under Basel II may include SMEs and mortgages, whereas sovereigns may be losers.

The contribution to the change in capital requirements across portfolios varies under the different approaches. Under the *standardised approach*, the most significant reduction in the credit-risk charges is derived from the retail portfolio, where the risk weights have been lowered significantly for all sub-portfolios compared with the Basel I Accord. This reduction was a fairly expected consequence of a) the reduction in the risk weight (from the current 50% to 35%) for residential mortgages; b) the decrease in the risk weight from 100% to 75% for non-mortgage retail business, which also benefits loans to those SMEs that can be treated as retail; and c) the importance of retail business for many banks participating in the exercise, in particular, the smaller and more specialised ones.

With respect to the other banking portfolios, the patterns of change are different: capital requirements for corporate portfolios showed little change as most exposures were reported as unrated and in general the risk-weight for unsecured exposures does not change from that under the current treatment, unless banks could benefit from the greater recognition of financial

collateral. For interbank and sovereign exposures, the patterns vary bank by bank, although overall there are increases in capital requirements reflecting lower-rated exposures. Nevertheless the contribution of these portfolios to the overall results is not significant because of their relatively small size and the current low-risk weighting.

Table 2.3 The contribution to the change in capital requirements⁵ across selected portfolios*

Portfolios	Standardised approach					IRB foundation approach					IRB advanced approach	
	G10		EU		Other	G10		EU		Other	G10	EU
	G1	G2	G1	G2	G1&2	G1	G2	G1	G2	G1&2	G1	G1
Corporate	1%	-1%	-1% <i>(0.22%)</i>	-1% <i>(-0.74%)</i>	0%	-2%	-4%	-5% <i>(-2.19%)</i>	-5% <i>(-3.79%)</i>	-1%	-4%	-4% <i>(-2.84%)</i>
Sovereign	0%	0%	0% <i>(0.29%)</i>	0% <i>(0.03%)</i>	1%	2%	0%	2% <i>(1.56%)</i>	1% <i>(0.69%)</i>	1%	1%	1% <i>(0.71%)</i>
Bank	2%	0%	2% <i>(1.61%)</i>	1% <i>(1.30%)</i>	2%	2%	-1%	2% <i>(2.04%)</i>	-1% <i>(1.11%)</i>	1%	0%	-1% <i>(-0.53%)</i>
Retail	-5%	-10%	-5% <i>(-4.72%)</i>	-7% <i>(-9.33%)</i>	-4%	-9%	-17%	-9% <i>(-8.70%)</i>	-18% <i>(-22.46%)</i>	-8%	-9%	-9% <i>(-8.65%)</i>
SME	-1%	-2%	-2% <i>(-1.23%)</i>	-2% <i>(-2.23%)</i>	-1%	-2%	-4%	-3% <i>(-3.14%)</i>	-5% <i>(-4.93%)</i>	1%	-3%	-4% <i>(-5.05%)</i>
Securitised assets	1%	0%	1% <i>(1.06%)</i>	0% <i>(0.07%)</i>	0%	0%	-1%	0% <i>(0.89%)</i>	-1% <i>(-1.82%)</i>	1%	0%	0% <i>(0.73%)</i>
General provision	-	-	-	-	-	-	-	<i>(-2.26%)</i>	<i>(-2.57%)</i>	-	-2%	-3% <i>(-2.20%)</i>
Other PF	2%	1%	2%	-1%	3%	4%	3%	3%	5%	5%	2%	4%
Overall credit risk	0%	-11%	-3%	-11%	2%	-7%	-27%	-13%	-27%	-3%	-13%	-15%
Operational risk	10%	15%	8% <i>(8.08%)</i>	12% <i>(9.41%)</i>	11%	10%	7%	9% <i>(9.06%)</i>	6% <i>(6.36%)</i>	7%	11%	10% <i>(9.67%)</i>
Overall change	11%	3%	6%	1%	12%	3%	-19%	-4%	-20%	4%	-2%	-6%

*The overall change from the 8% capital requirements.

Note: Figures in italics represent the Commission's results based on the weighted average.

Sources: Basel Committee (2003b) and European Commission (2003a).

On average, the reduction in the credit-risk charges is outweighed by the increase in the capital requirements resulting from the new operational-risk charge, which varies between a change of 8% and 15%. As a result, the total capital requirement is a little higher for the G10 and EU group 1 banks and almost unchanged for the G10 and EU group 2 banks.

Under the *IRB foundation*, banks based their assessment of the quality of their portfolios on the calculation of the probability of default. The results show a further reduction in capital requirements for retail portfolios compared with the standardised approach.⁶ This reduction is more significant for smaller banks owing to their greater involvement in retail activities. More

⁵ This table should be read carefully; it shows the change in the contribution to the total capital position and not the relative change per portfolio

⁶ As for retail exposures, the Committee sets only one IRB approach under which banks provide the loss given default (LGD) and exposure at default (EAD), as well as the probability of default (PD).

specifically, the retail mortgage book, having the largest contribution in the retail portfolio, has the greatest impact on the overall results, while experiencing on average the highest reduction in capital requirements compared with other retail asset classes.

Capital requirements for corporate exposures are generally found to be lower than those under the Basel I Accord. This reduction could be explained by the importance of exposures to high-quality borrowers within these portfolios and the recognition of physical collateral – as long as it meets the standards set by the Committee (e.g. the value must not be correlated with the creditworthiness of the borrower).

With respect to loans to SMEs – including those treated as corporate or as retail exposures – capital requirements are generally expected to be lower than current ones. For the first category of SMEs, the changes made to the corporate risk-weight curve following the second consultative paper (CP2) and the introduction of a size function (with lower requirements for exposures to small companies) have significantly lowered the capital requirements on good and medium-quality exposures. Loans to SMEs that are treated as retail exposures will have even lower requirements owing to the use of the retail risk-weight curve.

Exposures to sovereigns could be subject to slightly higher capital requirements for EU group 1 and 2 banks, although the average quality of these portfolios remains high. This increase may relate to the exposures of some EU banks to emerging markets.

Finally, unlike the standardised approach, the increase in operational-risk charges does not outweigh the large reduction in capital requirements for credit risk, for either G10 group 2 banks or EU group 1 and 2 banks. The use of a more sophisticated regulatory approach would allow smaller banks to hold less regulatory capital than is currently required. This reduction is primarily a consequence of the special treatment of the retail portfolio.

Under the *IRB advanced approach*, the results show an overall decrease in minimum capital requirements. Compared with the foundation approach, there is some variance mainly owing to sample differences, given that banks completing the advanced approach are only a sub-set of those completing the foundation one. Also, under the advanced approach, banks set their own LGDs and EADs for all portfolios, which were different from the supervisory estimates used by banks completing the foundation approach. For example, the average LGDs set by banks for interbank and corporate portfolios were rather lower than the fixed LGDs set by the Committee for the use of the foundation approach. Moreover, there was a considerable variability across banks completing the advanced approach, with many using higher LGDs than the Committee estimates.

In summary, these results may suggest that banks with a large retail portfolio are likely to benefit from the more advanced capital adequacy rules. This may be attractive and one could expect banks to streamline their business-line portfolios and focus on the activities that could offer this advantage. Yet basing the choice of business lines only on regulatory capital needs may be too simplistic; in fact, this choice should be determined by a cost-benefit analysis. In other words, if banks are sufficiently capitalised and if a particular activity yields a fully risk-adjusted return, then banks will still target this business segment. Holding less regulatory capital for one or another business line may be considered a competitive advantage when the risk is well-priced, but probably not the key driver to target a new business. Indeed, advantageous regulatory treatment of some businesses such as the retail portfolio is certainly favourable for banks with a large proportion of this type of exposure and whose aim is to more efficiently reallocate the amount of regulatory capital released. Nevertheless, on an aggregate level, this advantage should also serve to maintain the soundness of the banking system, as levels of capital and bank soundness are directly related. Indeed, highly capitalised banks have greater resources available for absorbing unexpected losses.

2.2 Evaluation of the QIS-3 results

Originally, the aim of the QIS-3 was to ensure that on average the minimum capital requirements remain unchanged when using the new capital adequacy approaches. Surprisingly, the Committee seemed to be partly satisfied with this evaluation exercise, even when it recognised the data collection difficulties encountered. This rather unusual, conservative behaviour may lead to an underestimation of the likely change in overall capital requirements, which could result in a substantial overall reduction and potentially jeopardise the stability of the banking system.

2.2.1 Issues raised by the QIS-3 results

The QIS-3 results indicate that the use of the IRB approaches would permit banks (particularly smaller ones) to release capital. Indeed, banks that have an active involvement in retail activities will be somewhat penalised if they remain under the standardised approach. Not only are they missing the opportunity to better assess their risks, but they are also likely to see the biggest drops in capital requirements if they develop IRB-compliant tools and procedures. This would hold an important lesson for all institutions that are going to adhere to the new regulatory capital regime. Indeed, to fully benefit from the more sophisticated risk-management approaches, institutions will have to improve the quality of their data, particularly with respect to credit-risk mitigation, which was an area where respondents found it difficult to provide the data needed to use the new forms of eligible collateral. This is also true with respect to the calculation of probability of default, loss given default and exposure at default – where some institutions failed to meet the data standards set up by the Committee – as well as to the assignment of SMEs to the different categories of SME exposures (corporate and retail). Nevertheless, in order to comply with the internal ratings-based approaches, banks will need to invest substantially not only in risk-management tools and procedures but also in the acquisition of risk-management expertise. Such investment decisions should follow a cost-benefit analysis to ensure that expected benefits will outweigh the fixed costs.

2.2.2 Critical analysis of the QIS-3 results and the lessons to learn

The QIS-3 is certainly a step forward and a good starting point to refine the calibration of the new capital rules, but this step is rather incomplete and some expectations on the part of the Basel Committee and the European Commission Services need to be reviewed. Indeed, whereas the importance of the correct calibration of the parameters in the new Accord is prominent, relying only on the QIS-3 results is debatable for the reasons below.

The substantial variance shown in the QIS-3 results has been mainly and simply attributed to the high-risk sensitivity of the new rules and to the more or less large share of retail activity of some banks. This explanation is, however, rather general and does not reveal the limits of the sample, the data, the definition or criteria used, nor the time horizon taken into consideration.

- First, the only information provided about the sample is that it includes 365 banks divided into large, diversified and internationally active banks, and smaller and more specialised banks from the G10, EU and other countries. Given this rather rough distribution, the Committee did not provide any information about the asset shares of the participating banks in the region where they operate. This is of a major importance for indicating whether or not the sample is representative.
- Second, considering the quality of the data submitted, the Basel Committee itself recognised a number of difficulties with the data collection exercise. Indeed, banks found it difficult to identify eligible collaterals under the different approaches. This problem is more significant under the foundation and advanced IRB approaches, owing to the allowance for different

collateral types. Many banks underreported collateralisation because of system constraints, which implies the difficulty of gathering data on exposures and collaterals and generating it in the format required for the QIS-3. Thus, an overestimation of capital requirements under these approaches has resulted. In addition, as stated by the Committee, many institutions failed to meet the data standards set with respect to the calculation of PD, LGD and EAD. As an example, there was an important variation across banks in the calculation of these risk components leading to relatively low PDs and LGDs for the retail mortgage book, even though it represents a highly cyclical activity (with significant defaults and losses in economic downturns). These differences in estimates across banks could reflect the different historical experience in different countries and the extent to which banks were able to take into account stress conditions when calculating PDs and LGDs. Further, a number of banks reported their incapacity to assign exposures to the two different SME categories as their systems were not able to provide the distinct information to enable them to split SME exposures. Hence, most of the information provided (especially on firm size) was not accurate.

- Another major problem is the definition of ‘default’, which was left to national discretion in most of the cases. As a result, probabilities of default have been estimated differently – using time series constructed by banks under national and sometimes company definitions of default, which are not always consistent with the reference definition set out in the new Accord. As a consequence, the lack of comparability among the estimates owing to different definitions and criteria under different national supervisory regimes may cause substantial distortions.
- Finally, it is important to mention that the endorsement of the new treatment of expected and unexpected losses proposed by the Basel Committee,⁷ which entails the calculations of IRB capital requirements solely on the basis of unexpected losses (as opposed to the proposals in the third consultative paper)⁸ will certainly require the revision of the final calibrations of the new Accord.

For these reasons, it is doubtful that based only on the QIS-3 results, the Committee and the Commission services could warrant the use of the advanced approaches to facilitate lower capital requirements. This objective has certainly been achieved in terms of overall approaches but not always for single portfolios under different approaches. Indeed, the QIS-3 results illustrated heavier capital charges on the sovereign, specialised lending and equity portfolios as opposed to lesser capital charges on retail portfolios.

Consequently, there is a strong need for improvement with respect to the data collected and the consideration of the effect of solely unexpected losses to calculate credit-risk capital charges under the IRB approaches – to enable a more precise assessment and refinement of the new regulatory rules. The most important point for improvement is the use of a larger sample that would better reflect the real situation in the banking industry by region and that would also rely on better quality and complete data. It is also important to make sure that all banking services – including commercial, cooperative and savings banks as well as investment firms – are represented in the sample.

The endorsement of the new treatment of expected and unexpected credit losses is a major reason for the Basel Committee and the Commission services to undertake another impact study, to re-evaluate the results generated by the data already collected (and if necessary to

⁷ Basel Committee (2003d).

⁸ In the CP3, banks using the most sophisticated methods to calculate their credit risk capital needs were supposed to base their sums on estimates of the probability of expected and unexpected losses.

recalibrate some of the risk-weight functions). Such analysis should occur before the implementation date in 2007, provided that the exercise will not cause a further delay in the Accord's finalisation.⁹

As for the improvement of the QIS-3 results, after recognising the limits of the data and the sample, there are some concerns. First, collecting new sets of data or improved data from banks that already participated in the QIS-3 will certainly lead to a further delay in the Accord's finalisation. Moreover, as some banks (particularly the smaller and medium-sized ones) will not be willing to invest in sound risk-management tools before the requirements set out in the new Accord are officially confirmed, there is no guarantee that the data quality would mark any substantial improvement relative to the QIS-3.

As an alternative strategy, the Committee could proceed with the approval of the new Accord based on the partial improvement of the QIS-3 results through the new treatment of expected and unexpected losses – while continuing the improvement of the calibrations of the risk-weights and the risk-functions through field tests before and during the first years in which the Accord is actually implemented. At the European level, the comitology procedure will allow for the rapid transposition of the technical changes to the third capital adequacy Directive (CAD III).

⁹ Many banking industry representatives have called for a QIS 4 before the implementation date – see ABI (2003), America's Community Bankers (2003), British Bankers' Association (2003) and Belgian Bankers' Association (2003).

Chapter 3

Impact of Basel II on Small- and Medium-Sized Credit Institutions

Andrea Resti*

Much attention has been paid to the impact of the New Basel Capital Accord (NBCA) on small- and medium-sized enterprises (SMEs). This class of firms plays a pivotal role in some large European economies (like Germany and Italy); hence, their treatment under the new Accord has been revised several times – and the capital computation formulae for loans to those companies have been carefully calibrated – to ensure that no credit crunch would ensue from their application.

Less consideration has been devoted – apparently – to the impact of the NBCA on small- and medium-sized banks (SMBs); however, this appears to be a critical issue from several points of view.

First, there is often a similarity between the size of a bank and that of the customers it serves. In many local credit markets, SMBs are fundamental in ensuring that small businesses are supported in their financial needs: while large banking groups may face informational barriers in assessing the creditworthiness of smaller firms (and may opt for a limited presence in this market segment where they lack the necessary skills and roots), many regional banks enjoy a competitive advantage, owing to a better knowledge of the local economy. Reducing their potential for credit supply could then seriously endanger the ability of SMEs to grow and expand.

Second, the implementation of the NBCA – although it represents a dramatic opportunity for banks to improve and refine their risk-management tools – is going to represent a considerable burden in terms of implementation and learning costs. Such fixed costs are likely to be better endured by large financial institutions, while their effect on SMBs may be higher. Thus, an acceleration of the consolidation process among local banks is likely to emerge as a result of the new Accord.

This consequence remains true even if the approaches adopted by small banks to comply with the new Accord are likely to be simpler than those followed by large credit institutions (the standardised approach to credit-risk measurement and the basic indicator approach to operational risks are likely to be the most common ones among SMBs). The implementation costs of Basel II, in fact, are expected to go beyond regulatory costs in a narrow sense, and will comprise all the expenses required to adapt to a new market environment, where internal ratings and other risk-management tools will be necessary to avoid adverse selection effects.¹

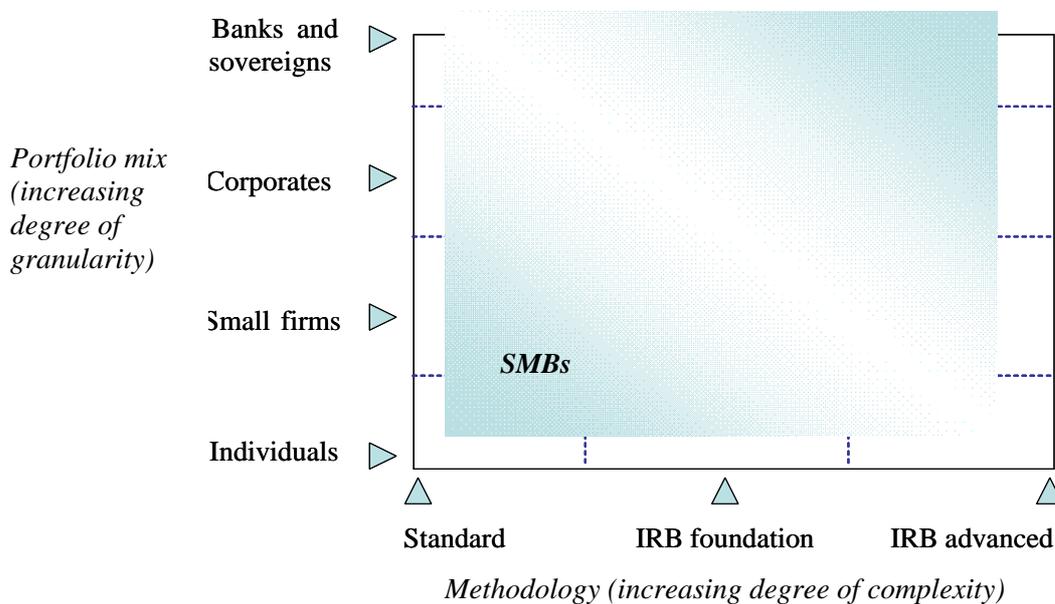
* Andrea Resti is at the University of Bergamo. He is especially thankful to Ole Bus Henriksen, Bernhard Speyer and Peter Konesny for their valuable suggestions on a previous draft. Useful additions from Victor Dowd on operational risks are gratefully acknowledged.

¹ If the gap between small and larger intermediaries widens, this could lead to a sort of ‘winner’s curse’, jeopardising the future profitability and stability of local banks; in fact, as will be explained in this chapter, such banks may increase their market shares only to find out, in the following years, that they have supplied credit to the wrong borrowers (i.e. to borrowers deemed unprofitable by their larger competitors). To avoid this adverse-selection effect, even small banks will be forced to invest in sound credit-risk measurement systems, which in turn will considerably increase their implementation costs.

If implementation costs risk being more sizeable for small- and medium-sized banks, then it is important to check that they will not face a comparative disadvantage at least in terms of capital requirements. This chapter will assess the possible effects of the NBCA on the capital ratios of SMBs from various perspectives, as indicated in Figure 3.1.²

The main factors that are likely to affect future capital requirements for SMBs are shown in Figure 3.1. The actual capital charge faced by each intermediary will depend on the type of approach it chooses and its portfolio mix (different classes of borrowers, different quality inside each class). As indicated by the grey shade in the graph, we expect that most SMBs will: 1) be more inclined towards simple, ready-to-use methodologies as the standardised approach to credit risk and the basic indicator approach to operational risk; and 2) benefit from an exposure mix that is more oriented towards individuals and small firms (that is, towards more granular portfolios that are somewhat rewarded by the NBCA).

Figure 3.1. Different portfolios and methodologies: The likely positioning of SMBs



In the next two sections, we cover those effects separately, although the final impact on SMBs will clearly depend on how they interact in practice. To get a rough picture of this interaction, some data from the latest quantitative impact study (Basel Committee on Banking Supervision, 2003b and 2003c) will be presented in the third section.

² Note that the capital measures considered in this paragraph comprise both expected losses (ELs) and unexpected losses (ULs) (even if Basel II ‘capital’ – narrowly intended – covers only the UL component). This choice is based on at least three justifications: 1) expected losses will still influence the total regulatory requirements for banks, although they may be covered through reserves as explained in chapter 1 of this report; 2) comparisons with Basel I capital (which also includes reserves) would be biased if expected losses were to be left out; and 3) the latest empirical estimates on the impact of Basel II on European banks (the so-called ‘CP3’) do include both the UL and the EL component.

3.1 Effects of different risk-measurement approaches

Figure 3.2 shows a comparative analysis of the capital requirements faced – on four different portfolios – by banks adopting either the standardised or the internal ratings-based (IRB) approach.

The chart (based on the weighting functions stated in the third consultative package) indicates the capital charges on a € loan issued to borrowers of different sizes and levels of risk.³ A rough estimate of the capital to be held against operational risk is also included.⁴ To avoid crowding a single graph with too much data, Figure 3.2 has been divided into two panels: the first one, panel ‘a’ covers loans to medium to large companies, while the second one, panel ‘b’ portrays the case of individuals and small retail businesses.

With regard to larger companies (panel ‘a’), one can see that banks adopting the standardised approach could enjoy a competitive advantage in the funding of risky borrowers (firms with a rating of B or below).⁵ Banks adopting the IRB and the standardised approach would face roughly the same capital requirements for BB-rated obligors (which have an average historical probability of default [PD] of about 1%). In the case of medium-sized enterprises with a turnover below €50 million, such an ‘indifference point’ would move towards higher PD values (e.g. 2% for borrowers with a turnover of about €5 million). This effect is because the less-steep weighting curve associated with corporate SMEs would make IRB banks slightly more tolerant towards risk. A similar result emerges from panel ‘b’, where loans to small businesses and individuals are covered.

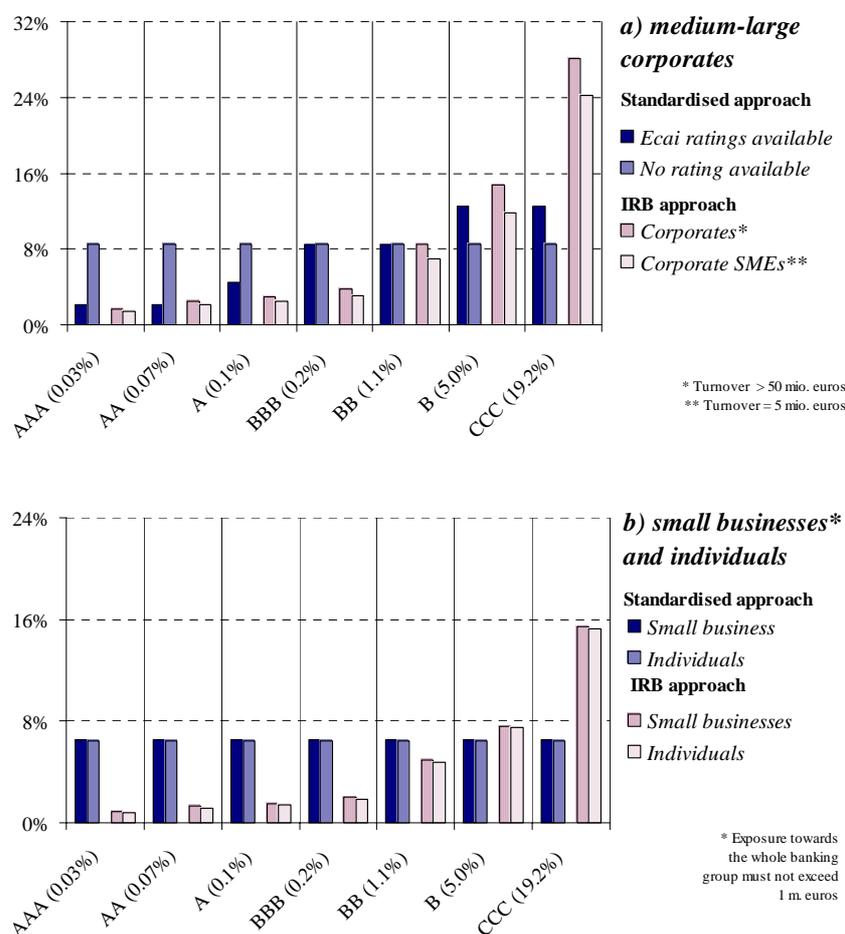
Here, too, risky borrowers (say B-rated borrowers and below, with historical PD of 5% or more) are less expensive for banks adopting the standardised approach than for IRB banks; the opposite is true for highly rated obligors. In the case of retail loans, however, customers with a PD of 5% or above may still be appealing for lenders (given that average default rates tend to be higher, in this market, than for corporate loans); however, the results shown in panel ‘b’ would not hold for qualifying retail-revolving exposures (mainly credit cards and rotating overdrafts to individuals), for which a separate weighting function (not shown in Figure 3.2) has been proposed by the Committee. For such products, the indifference point between the standard and the IRB approach would only be reached for higher PDs (of about 14%).

³ In the case of the IRB approach, a 45% loss-given default (LGD) (and where relevant, a maturity of two and a half years) have been assumed. Note that these are the base values set by the Basel Committee for standard unsecured loans under the IRB-foundation methodology. Banks adopting the advanced IRB approach, however, may deviate from such values and face capital charges that are different from those shown in Figure 3.2.

⁴ Such an estimate is based on the so-called ‘alternative standard approach’ stated in the third consultative paper: note that all loans to non-financial firms (including loans to small businesses) have been included in the commercial banking business line. In case some loans to small enterprises are ascribed to the retail banking sector, the capital consumption would decrease by about 10 basis points (capital against a €1000 loan would decrease by €1). Moreover, if the estimates were carried out through the standardised approach or the so-called ‘basic indicator approach’, capital requirements against low-quality, unsecured loans (which usually yield a higher gross income) would have risen slightly.

⁵ A slight advantage may also emerge for highly rated borrowers, although it depends on the availability of an external rating (which should not be taken for granted, at least in continental Europe).

Figure 3.2 Capital charges by portfolio and approach



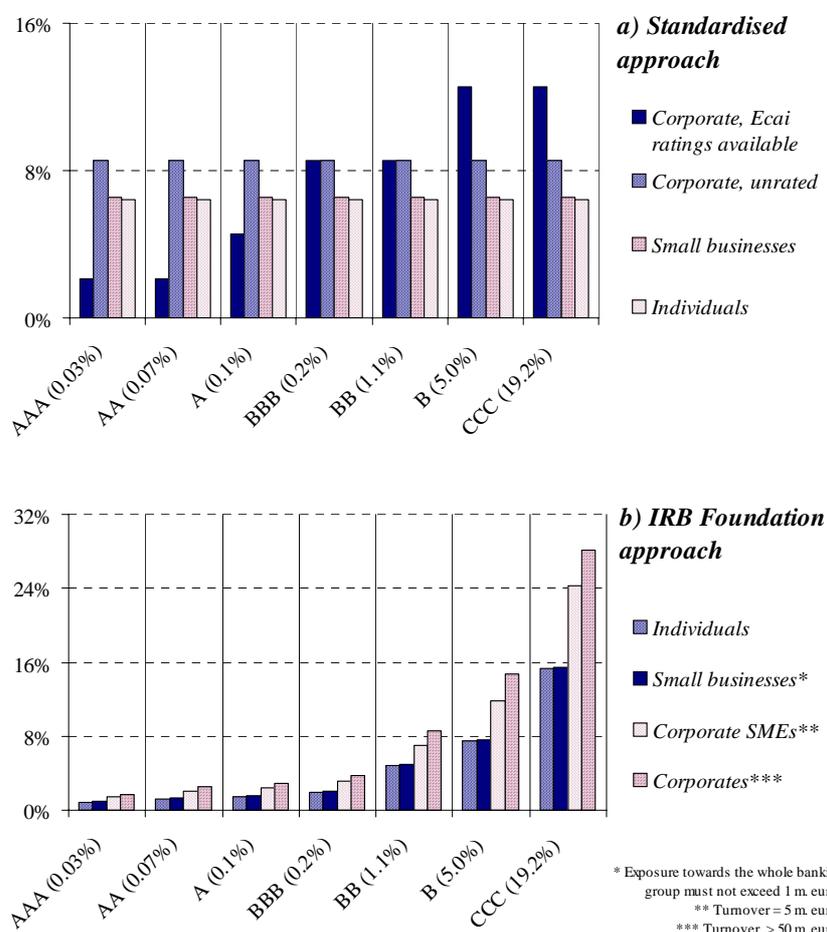
This brief analysis shows that small- and medium-sized banks adopting the standardised approach could be pushed towards lending to high-risk borrowers, since they would enjoy a relative advantage over larger banks adopting internal ratings, but only for this share of obligors (and the advantage would become more and more sizeable as the PD increases). Such a danger would not only be a microeconomic one, as systemic crises could result for SMBs if bank failures were to be triggered by the high loss-rates in the SME business.

Clearly, the temptation to specialise in high-risk, high-return (and relatively high-leveraged) loans would be easier to resist for SMBs having a simple, sound rating scheme in place: a system probably not compliant with all the requisites set out in the NBCA, but at least able to spot and isolate the riskiest firms. This suggests that even banks adopting the standardised approach might consider investing in internal ratings, to prevent a generalised deterioration in the quality of their exposures.

3.2 Effects of different portfolio mixes

The same simulation data discussed in the previous section can be rearranged differently (see Figure 3.3) to see how different portfolios will affect the overall capital requirement of a small- and medium-sized bank, once it has chosen between the standardised and the (foundation) IRB approach to capital computation.

Figure 3.3 Capital charges by approach and portfolio type



Panel 'a' describes the situation for a bank adopting the standardised methodology. Note that this is going to be case for most small- and medium-sized banks.

For loans to individuals, the capital requirement will be fixed at 6.53% (including an estimate of operational-risk charges). Roughly the same value applies to small firms without an external rating (as most SMB customers will probably be), if their total exposure towards the bank does not exceed €1 million. If that limit is exceeded, however, the capital charge increases by about 30%, reaching 8.53%. The same ratio applies to large corporates.

From a static perspective, the fact that SMBs have a portfolio mix that is more strongly oriented towards the retail business will help them enjoy lower capital requirements, when the flat 8% of Basel I is replaced by the system of weights indicated by the new standardised approach. From a dynamic point of view, moreover, the 2% difference between capital charges on small and large borrowers could act as an incentive for SMBs to further increase their presence in retail loans; note, however, that this is likely to be the market where competitive pressures from larger banks using internal ratings will be stronger.

In fact, panel ‘b’ shows that big institutions adopting the IRB-foundation methodology will also face lower capital requirements when moving towards more retail-oriented portfolios.⁶ In other words, the lower capital consumption brought about by loans to individuals and small businesses is likely to act as a catalyst, making retail exposures more appealing even for large credit institutions (which now are relatively more focussed on large corporate loans, as well as on sovereign and interbank exposures).

IRB banks, however, will have an incentive to ‘cherry-pick’ the least risky borrowers in the retail market: first, because they will have an adequate rating system to isolate and reject high-risk borrowers, and second because highly rated retail loans will translate into lower capital requirements (in contrast to what happens in the standardised approach, where the retail curve is flat). Hence, the risk that SMBs find themselves specialising in junk retail exposures looks like a credible threat.

To avoid such a threat, two avenues may, in principle, be followed.

- 1) Small- and medium-sized banks should invest in their own rating systems, which will probably be simpler and less structured than those required by the NBCA, even if such systems are not acceptable for regulatory purposes. In other words, SMBs should set up some minimal-rating structures, to be used as a self-defence tool, rather than for compliance purposes.
- 2) The implementation costs of a Basel-compliant IRB system should be scaled down, thus enabling many SMBs to invest in internal rating systems that can be used both for regulatory and credit-management purposes. In other words, supervision rules should give positive incentives, i.e. to SMBs to develop, to implement and to use modern and efficient risk-management systems – not only for their internal risk-management, but also for capital and supervisory purposes. One way to achieve such a goal, without watering down the consistency and soundness requirements that IRB systems must comply with to be validated by supervisors, would be to grant SMBs wider discretion to use the IRB approach on their core portfolios (e.g. corporate and retail borrowers), while sticking to the standardised approach permanently for non-core and some business units and exposure classes, such as sovereigns, public sector entities (PSEs) and banks.

3.3 Some estimates on the impact of the NBCA on SMBs

The results of the third quantitative impact study (QIS-3), carried out at the end of 2002 by the Basel Committee on an international sample of 365 banks, can be used to infer some possible consequences of the NBCA for small- and medium-sized banks.

QIS-3 results do *not* report separate data for small banks. They do, however, operate a distinction between group 1 banks (larger banks, internationally active, with tier 1 capital in excess of €3 billion) and group 2 banks (smaller and generally less complex banks that are not internationally active); the latter will be used in this section as a proxy for SMBs. Data on group 2 institutions based in the EU are reported in Table 6. Note that the two columns in the table are

⁶ Note that, however, the discount associated with moving from corporate to retail exposures will not be constant, but will rather depend on the PD of the borrower. Consider, for example, the case of a bank that cuts its total exposure towards a borrower below the €1 million threshold, and thus moves the loan from the SME-corporate to the SME-retail portfolio. The amount of regulatory capital saved will be immaterial for high-quality customers, but will reach 2% to 4% of the exposure for average quality customers and will be as high as 9% for the most risky (CCC-rated) obligors.

not strictly comparable, as only 57 banks reported data on the foundation IRB methodology as well (as opposed to 160 institutions simulating the effects of the standardised approach).

The results in Table 3.1 deserve some remarks. First, both the standardised and the IRB approach seem to bring about a decrease in total regulatory capital for group 2 banks. Yet while this decrease looks very modest under the standardised approach, it is quite sharp when the internal ratings-based methodology is applied. This may reflect differences in the two samples that completed the impact study for the standardised and the IRB approaches; however, it is also a sign that the loan portfolios of the regional banks participating in the QIS-3 were made mostly of low-risk borrowers and did not include a considerable share of junk exposures. IRB-collaterals (such as physical capital and receivables), which are not recognised under the standardised approach, could also help explain the strong drop in the regulatory capital when the IRB rules are applied.

The capital savings enjoyed by group 2 banks seem to be explained mainly by the retail portfolio (including individuals and small businesses). Corporate SMEs also give a substantial contribution to the reduction of the overall capital charge. On the other hand, the new requirement against operational risk is the main item driving up total capital compared with its current levels.

Table 3.1 Changes in the capital requirements (as compared with the present Accord) for group 2 banks: Total effect and contributions of individual sub-portfolios

	Standardised	Foundation IRB
Sovereign	0.03%	0.69%
Bank	1.30%	1.11%
Retail (including small businesses)	-9.33%	-22.46%
Corporate	-0.74%	-3.79%
Corporate SMEs	-2.23%	-4.93%
Operational risk	9.41%	6.36%
Securitisation	0.07%	-1.82%
Trading portfolio	0.10%	0.05%
Specialised lending	-0.61%	1.01%
Equity	0.14%	1.37%
Receivables	0.00%	0.00%
Investments in related entities	0.64%	1.12%
Use of general provisions	0.00%	-2.57%
Total	-1.22%	-23.86%

Source: European Commission (2003a). Individual data were weighted based on each bank's relevance inside its national system; national data were weighted according to the amount of regulatory capital (tier 1 + tier 2 – deductions) present under the current Accord in each of the 15 EU member states.

3.4 Final remarks

This chapter has assessed the likely impact of the NBCA on small- and medium-sized banks. Several results have emerged, which can be summarised as follows:

- The survival of some SMBs as independent entities could be endangered by the New Basel Capital Accord (NBCA), as the implementation costs of the Accord are fixed and their incidence is likely to be higher for smaller intermediaries.
- Nevertheless, small- and medium-sized banks, having a portfolio mix that is significantly focused on retail exposures, will enjoy an initial advantage when the NBCA comes into

effect regardless of the approach used. Under the IRB approach, however, such an advantage will be even greater as the average PD levels of their borrowers (according to the results of the QIS-3 exercise for regional banks) seem to be reasonably low (at least in the current phase of the economic cycle) and will trigger a considerable decrease in regulatory capital when the current 8% capital ratio is replaced by a more risk-sensitive system. Nevertheless, this is an average result and does not apply to each bank: for many SMBs the risk of an increase in regulatory capital (which would increase the strain owing to implementation costs) cannot be ruled out.

- After Basel II is adopted by European regulators, competition is likely to increase mainly in the retail market, since it will command lower capital requirements while offering better gross margins. SMBs may therefore lose part of their informational advantage in issuing loans to individuals and small businesses, as competitive pressures from larger credit institutions intensify.
- The standardised approach, which many SMBs are likely to adopt to keep compliance costs reasonably low, may bring about adverse-selection effects because of the fact that it imposes a flat capital requirement on all unrated issues, without rewarding those banks that lend to better quality borrowers.
- To keep their competitive grip on the retail market and to counter adverse-selection effects, SMBs will possibly develop an interest in credit-rating systems; such systems, even if they may not be advanced enough to be acceptable for regulatory purposes, will represent another, indirect cost of Basel II for small- and medium-sized banks.
- To match costs and benefits of investing in internal rating systems, a change in the present regulatory framework should be considered. The present Basel Committee proposals require banks to extend the IRB approach across the entire group as well as across all material asset classes.⁷ This calls for the development of additional rating systems for sovereigns, PSEs and banks, an investment which – from our point of view – may be both too expensive and unnecessary for most SMBs. For these exposures, the standardised approach looks adequate, because external ratings (which are largely available for these classes of borrowers) could be used as a basis for risk assessment and capital measurement.⁸

⁷ The Commission's consultation document for an EU directive, in suggesting a phased rollout, hints that claims on sovereigns and claims on banks may be exempt from the IRB approach *permanently*, if there is only a limited number of counterparties in these asset classes. Consequently, the standardised approach may be applied on those exposures.

⁸ Partial use is also a material issue for banking groups. Whereas for the parent company it could be easier to implement the IRB approach, for subsidiaries – especially in foreign countries or with a completely different business profile – it could be necessary to apply the standardised approach permanently. Given this situation, levelling the playing field between EU banks and Basel banks suggests that the 'partial-use' approach should be transferred into the New Basel Capital Accord.

Chapter 4

Impact of the New Basel Capital Accord on SME Financing

Rym Ayadi*

Lending to small- and medium-sized enterprises (SMEs) under the new Basel II rules raised serious concerns among industry members and national regulators since the release of the second consultative paper (CP2).¹ It has often been argued that the new capital requirements for lending to SMEs will be higher since the default of these entities is more likely to occur compared with larger enterprises. The empirical evidence,² mostly oriented towards the relationship between average asset-correlation and a firm's asset size, suggests that average asset-correlation is an increasing function of a firm's asset size. In other words, the value of the asset correlation for an SME is lower than for larger firms, which makes the latter more sensitive to any changes in the macroeconomic environment compared with SMEs, which are mainly driven by idiosyncratic elements inherent to their own weaknesses.

An excessive capital charge could discourage banks from granting loans to SMEs and provoke a shortage of finance for them. This situation would be prejudicial for the European economy as SMEs are known to be the most important source of growth and employment creation, and they already suffer from financing problems. Since the CP2, a careful analysis of the issue has been carried out by both regulators and industry members; finally, the empirical evidence supporting the relationship between asset-correlation and the size of the firm has been accepted.

4.1 The Importance of the SME sector in the European economy

SMEs play a central role in Europe. Indeed, according to the European Observatory of SMEs (2002), 20 million SMEs were providing jobs for more than 80 million people in the EU-19³ (see Table 4.1), which accounts for about two-thirds of total employment.

Table 4.1 Main indicators of non-primary private enterprises for the EU-19 in 2000

	SME				LSE*	Total
	Micro	Small	Medium-sized	Total		
Number of enterprises (x 1000)	19,040	1,200	170	20,410	40	20,450
Employment (x 1000)	41,750	23,080	15,960	80,790	40,960	121,750
Persons occupied by enterprise	2	20	95	–	1,020	–
Turnover per enterprise (€million)	0.2	3	24	0.6	255	1.1
Value added per occupied person(x €1000)	40	75	105	65	115	80
Share of labour costs in value added (%)	66	66	58	63	49	56

*Large-scale enterprises.

Sources: Estimated by EIM business and policy research, based on Eurostat's SME database; also based on *European Economy*, Supplement A, June 2001 and *Economic Outlook*, No. 65, OECD, June 2001.

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¹ Basel Committee (2001a).

² Lopez (2002); Dullmann & Scheule (2003).

³ Member states of the EU plus Iceland, Liechtenstein, Norway and Switzerland.

The SME sector is divided into three sub-categories: micro, small- and medium-sized. A harmonised SME definition was released by the European Commission in May 2003 and is planned to take effect from January 2005. This definition is based on four factors: number of employees, annual turnover, total balance sheet and independency (see Table 4.2).

At first glance, it is obvious that the definition adopted by the Basel Committee is different from that of the European Commission as a consequence of their different focuses. The Basel II definition only considers the annual turnover and the size of the exposures, regardless of the number of employees or the total balance sheet of SMEs. What certainly matters is managing the risk of the exposures, which is consistent with the objective of limiting insolvencies in banks' portfolios. The incorporation of the Basel II regulation into the European capital adequacy Directive will certainly help to bring about a needed consistency between the definitions.

Table 4.2 Definition of SME

Category	Employees	Turnover	Total balance sheet	Independence
Micro	<10	€2 million	€2 million	Given by <25% capital shares by third party
Small	<50	€10 million	€10 million	
Medium-sized	<250	€50 million	€43 million	

Source: European Commission (2003c).

When comparing productivity and development of the workforce as well as profitability of SMEs to large-scale enterprises (LSEs) over the period 1988-2001, SMEs showed satisfactory growth in productivity; they also contributed to an overall increase in employment and experienced a higher increase in the average profitability than LSEs (see Table 4.3). This is substantial evidence of the growth potential offered by SMEs to the European economy. Moreover, empirical research suggests that SMEs help stabilise overall employment, especially during periods of economic downturn.⁴ Given this prominent role, it is important to ensure adequate financing to SMEs to promote their growth as it is essential to the prosperity of the European economy.

In Europe, besides equity financing,⁵ SMEs rely on different forms of external financing, ranging from overdrafts and bank loans to leasing, external investors, subventions and factoring. The availability of equity in SMEs varies among the European countries and among the different firm sizes (see Table 4.4). In some member states such as in Germany and Austria, SMEs rely much less on their own capital and in others such as in France, Belgium, Spain and Portugal, the share of equity in the total balance sheet ranges between 39% and 42%. A higher equity share could reduce the risk of an investment and provide a firm with wider access to external finance. According to a study performed by the European Commission, the most frequently used external financing sources are overdrafts, bank loans and leasing.⁶

⁴ See Davis & Haltiwanger (1992); Fendel & Frenkel (1998).

⁵ This is defined as the capital provided by the owner(s). The definition of equity may differ among the European countries.

⁶ European Commission (2001a).

*Table 4.3 Real value-added employment and profitability by country, EU-19 in 1988-2001
(average annual change in %)*

	Real value added		Employment		Profitability	
	SMEs	LSEs	SMEs	LSEs	SMEs	LSEs
Austria	2.2	1.9	0	0.2	0.1	-0.1
Belgium	1.9	2.2	0.2	0	0.1	0.4
Denmark	2.6	2.8	0.1	0.2	0.6	0.7
Finland	-0.1	0.1	-1.7	-1.6	-1.3	-1.2
France	1.3	2.4	0.3	0.7	-0.1	0.2
Germany	2.5	3.2	0.3	-0.3	0.3	0.6
Greece	3.3	2.3	2.1	1	-0.6	-3
Ireland	7.7	9.5	2.8	3.1	2.1	0.9
Italy	1.3	1.3	-0.3	-0.4	1.1	1.5
Luxembourg	5.4	4.8	2.6	1.1	0	0.4
Netherlands	2.1	2.5	1.1	0.9	0	0.3
Portugal	3	3.3	0.2	0.4	2.6	0.7
Spain	2.7	2.9	1.2	1.3	0.4	0.4
Sweden	1.6	0.8	-1.2	-1.4	0.1	-0.9
UK	2.4	2.3	-0.1	-0.9	0.2	0.2
EU	2	2.5	0.3	-0.1	0.5	0.3
Iceland	1.6	0	1.3	0.5	-0.6	2.7
Norway	3.2	3.9	1.5	1.5	0.2	1.1
Switzerland	1.6	1.7	0.4	0.1	0.5	2.1
Non-EU	2.2	2.5	0.7	0.4	0.3	2
Total	2.1	2.6	0.3	-0.1	0.5	0.3

Sources: Estimated by EIM business and policy research, based on Eurostat's SME database; also based on *European Economy*, Supplement A, June 2001 and *Economic Outlook*, No. 65, OECD, June 2001.

Table 4.4 Share of equity in the total balance sheet by enterprise size (in percentages)

Size by turnover (million)	Austria	Belgium	France	Germany	Italy	Portugal	Spain
Less than €7m	13	40	34	14	26	31	42
Between €7m and €40m	27	38	35	22	25	40	43
€40m and more	31	39	35	31	28	51	37
All sizes	28	39	35	30	27	42	38

Source: European Commission (2001a).

Nevertheless, the composition of external financing resources varies greatly among the European countries (see Table 4.5). In some member states such as in Austria and Germany, enterprises have traditionally relied on a close relationship with one local bank (the Hausbank principle), which is willing to lend even when business conditions are difficult. In other countries such as Denmark, Italy, Ireland and Sweden, enterprises have a particular preference to use overdrafts to finance their businesses. Overall, according to the Exco, Grant & Thornton survey on SMEs (2001), 46% of European SMEs rely on bank loans, 50% rely on overdrafts and 39% rely on leasing. Hence, the strong reliance on loan finance implies an equally strong need for collaterals to secure access to loans for healthy businesses.

Table 4.5 SMEs' use of external financing in the EU (in percentages)

	Overdrafts	Leasing	External investors	Factoring	Bank loans	Subventions
Belgium	37	25	12	4	56	14
Denmark	73	25	13	7	24	7
Germany	47	43	5	2	66	7
Greece	23	15	10	8	68	12
Spain	8	48	15	15	58	10
France	36	47	7	32	63	11
Ireland	70	48	19	14	39	10
Italy	78	41	7	17	17	10
Luxembourg	22	33	15	11	44	15
Netherlands	17	31	11	3	50	9
Austria	42	39	1	6	65	8
Portugal	16	47	7	10	48	6
Finland	46	27	15	14	64	11
Sweden	70	29	10	3	27	6
United Kingdom	59	42	11	7	34	10
Total EU	50	39	9	11	46	9

Source: Exco, Grant & Thornton survey of SMEs (2001).

4.2 The main problems facing European SMEs

Traditionally, SMEs seem to have suffered problems with obtaining external financing particularly in the credit market, because of asymmetric information. According to Stiglitz and Weiss (1981), firms may suffer from credit rationing, which means that they do not get as much credit as they want even though they are willing to pay the interest rate set by their lenders and in other cases meet extra conditions to ensure their solvability. Let us recall that in most perfect markets, where there is an excess of demand, prices increase, which in turn leads to an increase of supply and then a decrease in demand. Nevertheless, in credit markets, lenders are not able to manipulate the interest rates and increase the supply of loans even if the demand remains unsatisfied.

A key point to understanding credit rationing is the problem of *asymmetric information* between lenders and borrowers. Indeed, on the side of the borrower, when launching a new business or an innovative project, an entrepreneur (or an investor) is normally better informed about the project risks than those financing it. Information asymmetries may prevent lenders from observing the real nature of the borrower and also prevent them from influencing the borrower's strategic behaviour after credit is released. As a result, the lender could voluntarily raise the risk premium on loans to properly manage its risks. In this case, lenders may attract riskier borrowers because of the adverse-selection principle or encourage riskier behaviour owing to the moral-hazard principle, which in turn enhances the probability of default and encourages credit rationing.

SMEs suffer the most from the realities of imperfect credit markets. First, they are disadvantaged by their size, which prevents them from gaining access to capital markets easily and therefore encourages them to rely heavily on credit markets to finance their investment projects. Also, smaller firms are considered to be more vulnerable than larger ones as they face less rigorous reporting requirements owing to their age and their short credit history. Moreover,

some family-owned businesses are sometimes very sceptical of reporting strategic information such as business structure, growth opportunities, strategic orientation or ownership structure.

Hence, several possibilities are offered to lenders to smooth out loan financing: the first of these involves asking for adequate collateral; the second strategy is that of preferring firms with a high equity-credit ratio. In the first strategy, it is not an easy task to provide adequate collateral and especially the type that protects the lender from the harmful effects of adverse selection and moral hazard.

In the second strategy, the availability of equity in SMEs varies among countries and depends on the SME's size. As shown in Table 4.4, equity shares vary between 13% and 51% in Europe. This variance is primarily a result of heterogeneous tax laws between the member states, which may be more favourable in some countries such as Belgium and less favourable in countries such as Germany. It is also important to raise the issue of adequate pricing in stock markets, which may be an important resource for facilitating new equity capital for firms in the start-up stage of their business cycle – which in turn will make it easier to obtain loans with favourable conditions. But, in the case of stock market crises, where a strong distortion in prices is implied, the opposite scenario could occur and the expansion of young firms would be undermined.

Another problem that faces small- and medium-sized enterprises is the relatively high lending costs arising from the lack of competition among lenders in some regions, which enables them to charge interest rates that are in excess of what the underlying credit risk requires. Usually, small businesses are dependent on small local banks, implying a clear relationship between bank size and SME-lending, with larger banks having less exposure to small businesses.⁷ Indeed, on the one hand small and local banks may have an advantage in offering finance to SMEs because of their local knowledge and experience, which in turn strengthens the bank-firm relationship and contributes to reducing information asymmetry; but on the other hand, this tends to create market power, allowing extraction of the surplus from SMEs.

To illustrate the finance constraints facing SMEs, the results of the survey undertaken by the European Observatory of SMEs⁸ indicate that about 30% of the firms with less than 50 employees feel that access to finance is the major constraint to the development of their business (Figure 4.1). The same survey reveals large disparities across European Union countries. For instance, it seems that small- and medium-sized enterprises in Greece SMEs are the ones that suffer the most from lack of financing, followed by SMEs in Denmark. But for the other European countries, on average only 10% of SMEs consider access to finance a real constraint to their businesses (Figure 4.2). These results are rather informative but call for a more rigorous approach to ascertain whether finance constraints hinder the growth of small- and medium-sized enterprises.

⁷ Berger et al. (1998).

⁸ The survey covers 7,600 SMEs in 19 European countries, see European Commission (2000 and 2002).

Figure 4.1 Share of firms that consider access to finance to be the major business constraint, by size (in percentages)

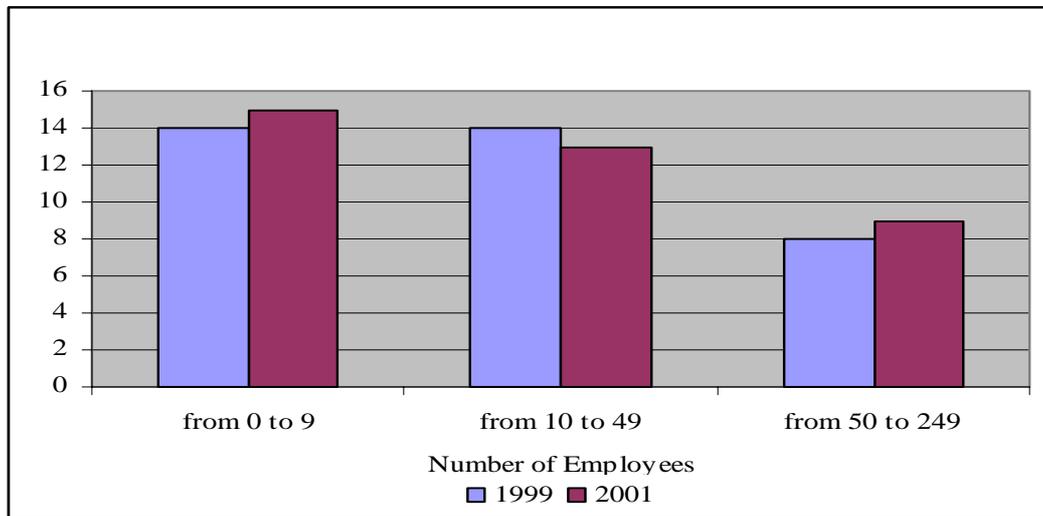
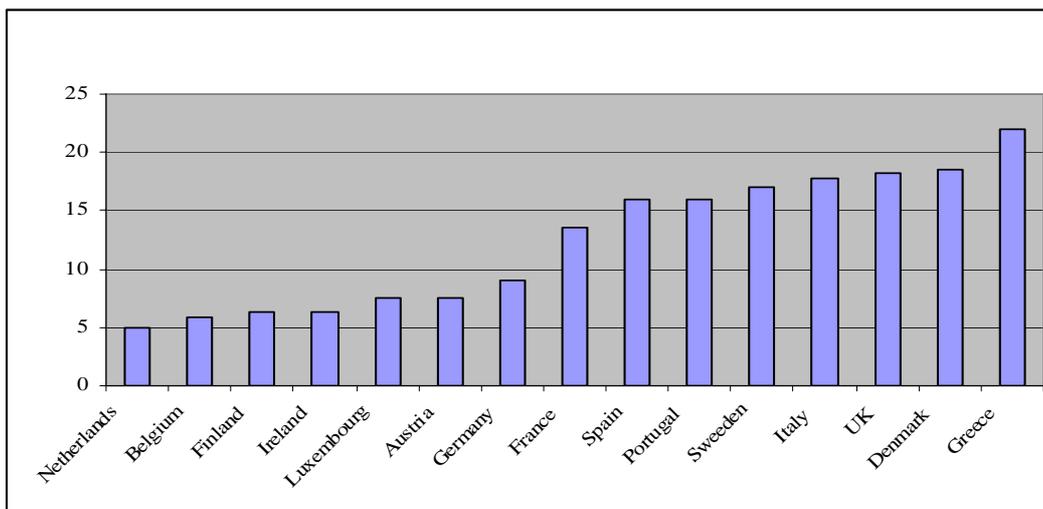


Figure 4.2 Share of SMEs that consider access to finance to be the major business constraint, by country in 1999 (in percentages)



4.3 Possible impact of the capital regulatory rules on SME financing in the EU

SMEs are recognised as the driving force behind economic growth in Europe. Their contribution to economic growth arises from their capacity to provide jobs for two-thirds of all employees. Nevertheless, some SMEs tend to be more risk-prone than larger firms because of their own weaknesses. One might think that the risk-sensitive rules introduced by the new regulatory framework could penalise those borrowers facing difficulties in their businesses by inflicting more capital charges on them, which would induce banks to limit credit access to SMEs. This scenario is more likely to happen when the economy is facing a downturn, forcing banks to adopt a more restrictive loan policy. Yet these concerns have been addressed by the Basel Committee and a discount was introduced to ensure that smaller firms are assigned a lower risk-weight at the same probability of default compared with larger firms. Also, the flattening of the risk-weight curves and the introduction of longer time series for estimating the probability of

default will have an anti-cyclical effect in downturns and upswings. Given these changes, several questions arise: What is the rationale for such concessions? What are the direct and the indirect effects of the new capital rules on SMEs? What measures should be taken to promote SME financing under the new rating culture imposed by the new regulatory framework?

4.3.1 Evolution of SME treatment under the New Basel Capital Accord

The treatment of SMEs under the New Basel Capital Accord (NBCA) has secured considerable attention from regulators and practitioners owing to the importance of the SME sector for economic growth in many countries and particularly in the EU. Hence, significant efforts and time have been dedicated to ensure an appropriate treatment of credit risk associated with exposures to SMEs.

Many changes have been undertaken since the first consultation period in January 2001, aimed at reconsidering the capital charges imposed on lending to SMEs under the internal ratings-based (IRB) approach.⁹ The changes were related to two fundamental issues: the calibration of the respective risk-weight functions and the definition of the dividing line between retail and corporate portfolios.

In November 2001, the Committee introduced two fundamental modifications related to the January 2001 risk-weight curves, while leaving the door open for further specific considerations.¹⁰ The main changes can be summed up in the following points:

- a) Modification of the risk-weight curve for corporate exposures led to a change in capital requirements. This change was a result of the evidence suggesting that the asset-correlation is a decreasing function of probability of default (PD), leading to a decrease in the slope of the capital curve.¹¹ Hence, borrowers with higher risks of probability of default will certainly benefit from these changes.
- b) A specific risk-weight curve was designed for other retail exposures,¹² which is different from the residential mortgage risk-weight curve. In this respect, an exposure to an SME could be included within the retail category because of its size.

Since then, the Committee continued its extensive work on the SME issue until the new amendment of July 2002, where it announced three more changes aimed at decreasing the

⁹ Under the first draft of the Basel II proposals (Basel Committee 2001a), many commentators pointed out a calibration problem with the SME credit formulae, which led to a very steep risk-weight curve for SMEs and results in excessive capital charges on SME loans.

¹⁰ Basel Committee (2001b).

¹¹ The modified November 2001 IRB formula differed from the one proposed in January 2001 in the following ways: there was no explicit scaling factor in the formula, the confidence level was increased from 0.995 to 0.999 and the asset correlation was set as a function of the PD. The final capital equation had this form: capital requirements = $LGD * M * N[(1-R)^{-0.5} * G(PD) + (R/(1-R))^{0.5} * G(0.999)]$. LGD stands for the loss given default, R is the correlation coefficient = $0.1 * (1 - \exp(-50 * PD)) / (1 - \exp(-50)) + 0.2 * [1 - (1 - \exp(-50 * PD)) / (1 - \exp(-50))]$; M is the maturity adjustment, $M = (1 + 0.047 * ((1 - PD) / PD)^{0.44})$; N(x) denotes the standard normal cumulative distribution function and G(y) stands for the inverse of the standard normal cumulative distribution function.

¹² This curve varied with respect to the January 2001 one in that the correlation coefficient was no longer a constant but a function of the probability of default; it did not contain an explicit scaling factor nor an implicit maturity one and it incorporated a higher confidence level. The capital equation was as follows: capital requirements = $LGD * N[(1-R)^{-0.5} * G(PD) + (R/(1-R))^{0.5} * G(0.999)] - LGD * PD$. $R = 0.04 * (1 - \exp(-25 * PD)) / (1 - \exp(-25)) + 0.15 * [1 - (1 - \exp(-25 * PD)) / (1 - \exp(-25))]$. It has to be noted that in this curve expected losses are covered by margin income.

amount of capital required depending on the size of the borrower.¹³ The first change was a substantial reduction of the risk weight for other retail exposures under the standardised approach from 100% to 75%. The second one was the flattening of the corporate risk-weight curve, with a particular consideration for credit exposures to SMEs included in the corporate asset category (see Figure 4.3). And the third change was the introduction of three risk-weight curves for different retail exposures (see Figure 4.4).

Consequently, a substantial differentiation between SMEs and larger firms was introduced, as a result of the explicit relationship found empirically between asset-correlation and firm size.

Finally, the July modifications were materialised in the curves made public by the Basel Committee when the third quantitative impact study (QIS-3) was launched in October 2002.¹⁴ Those curves were formally presented in the third consultative paper (CP3) in April 2003.¹⁵

With respect to the definition of SMEs, a quantitative criterion for defining an exposure to an SME as lying within the retail or the corporate boundaries has been introduced. Hence, these two types of SME exposures were addressed. First, an SME is treated in the corporate asset class when the total annual sales are lower than €50 million and total exposure to a bank is greater than €1 million. A discount factor, which can reach 20%, is introduced for lending to this type of borrower. Second, SME loans below an exposure size of €1 million can be treated in the retail portfolio (this is subject to a concentration limit and to the requirement that the lending institution actually treats such exposures as retail).¹⁶ The capital requirement in the retail portfolio is generally lower than the corporate portfolio.

Following these changes along the process, SMEs will be assessed under the three approaches of the new Accord. For banks that choose to rate their risk exposures under the standardised approach, SMEs treated as corporate borrowers will receive a risk weight of between 20% and 150%, depending on their rating class quality.¹⁷ Unrated exposures will receive a 100% risk weight, which is equivalent to the current 8% of the unweighted loan. SMEs that are qualified as retail borrowers will receive a 75% risk weight.

¹³ Basel Committee (2002a).

¹⁴ Regarding the IRB approach, the curve for corporate exposures was as follows: capital requirements = $LGD * N[(1-R)^{-0.5} * G(PD) + (R/(1-R))^{0.5} * G(0.999)] * (1 - 1.5 * b(PD))^{-1} * (1 + (M-2.5) * b(PD))$. In this equation R is, again, the correlation coefficient, $R = 0.12 * (1 - \exp(-50 * PD)) / (1 - \exp(-50)) + 0.24 * [1 - (1 - \exp(-50 * PD)) / (1 - \exp(-50))]$; M is the maturity and b is the maturity adjustment, $b = (0.08451 - 0.05898 * \log(PD))^2$. The curve for other retail exposures was finally set out as: capital requirements = $LGD * N[(1-R)^{-0.5} * G(PD) + (R/(1-R))^{0.5} * G(0.999)]$, where $R = 0.02 * (1 - \exp(-35 * PD)) / (1 - \exp(-35)) + 0.17 * [1 - (1 - \exp(-35 * PD)) / (1 - \exp(-35))]$.

¹⁵ Basel Committee (2003a).

¹⁶ This encourages banks to treat as many clients as possible under the retail approach. Furthermore, between the retail and the lowest SME curve there is a gap that will result in a 'cliff effect' and thus opportunities for arbitrage.

¹⁷ As explained in chapter 1, the capital charge on a high-quality loan of €100 to an SME rated AAA to AA- is €20 of risk weighted asset multiplied by the original 8% leading to a total of €1.6 (in other words 1.6% of the unweighted exposure). In contrast, a low-quality loan to an SME will give rise to a capital charge of $150 * 8\% = €12$, which is 12% of the unweighted exposure.

Figure 4.3 Decrease in CP3 risk weights for corporate exposures (LGD 45%; Maturity 2.5 years)

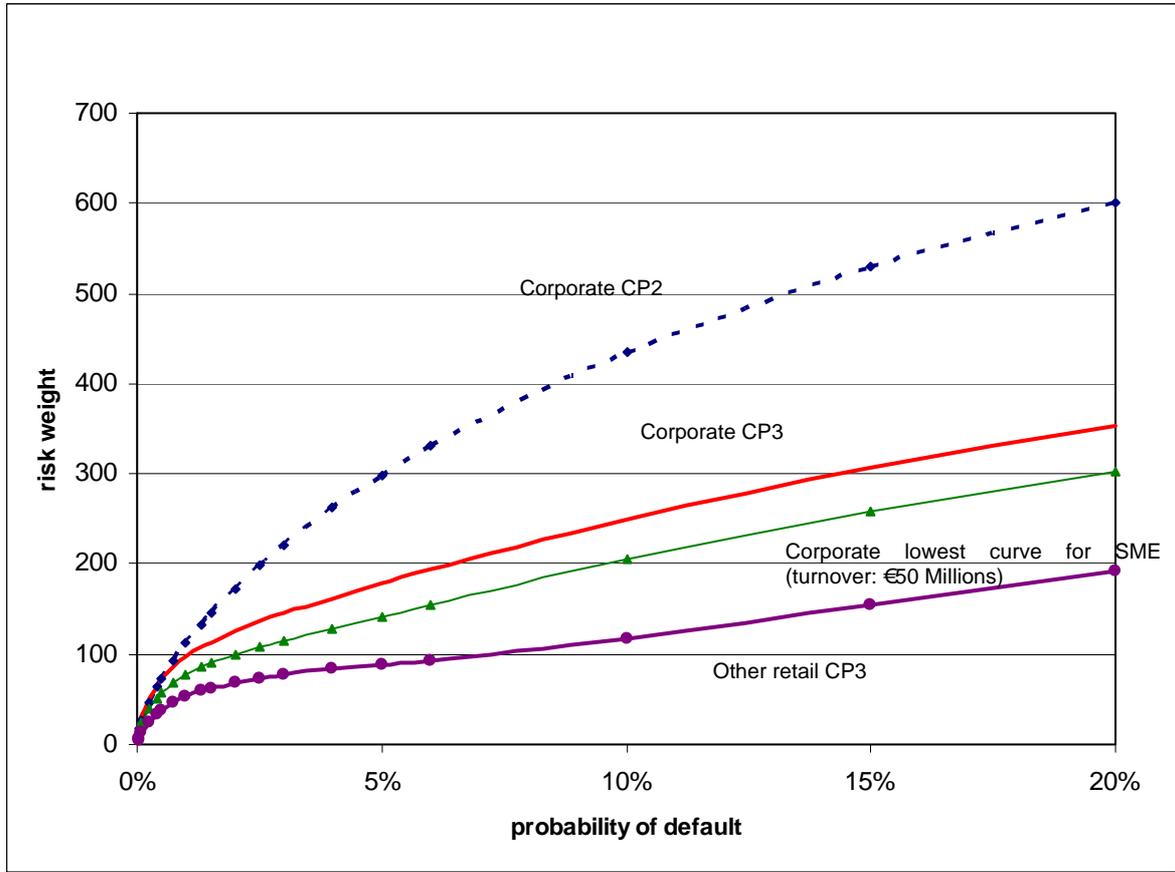
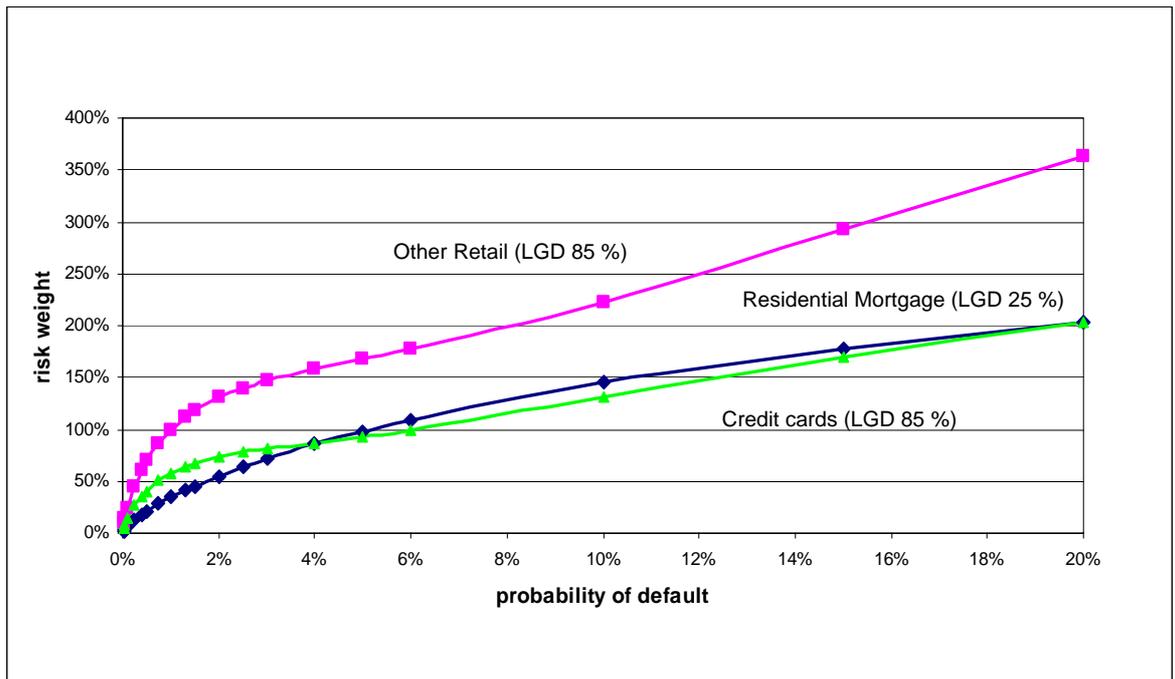


Figure 4.4 New risk-weight curve calibration for retail exposures (maturity = 2.5 y)



The treatment of secured loans for SMEs has received a particular attention in two cases. When the loans are secured by commercial real estate, they receive in principle a risk-weight of 100%. Nevertheless, national supervisors will be allowed to assign a reduced risk-weight of 50% for 50% of the market value or 60% of the mortgage-lending value when two supervisory tests are fulfilled.¹⁸ When the loans are secured by mortgages on residential property, they will receive a risk weight of 35%. Any unsecured exposure will have a risk weight of 100%.

Finally, banks providing venture capital or other equity capital to SMEs will have to risk weight their exposures by 100%. For some cases, national supervisors will apply a risk weight of 150% to such exposures.

Under the IRB approach, two alternatives are offered to banks according to whether they use the foundation or the advanced IRB to rate their SME portfolio. Under the foundation approach, banks will have to provide estimates for PDs internally (based on historical data about the borrower) and rely on supervisory estimates for loss given default (LGD), exposure at default (EAD) and maturity (M). Under the advanced approach, banks will have to estimate all these risk components internally. Some differences exist as to whether the SME is treated as a corporate or as a retail borrower. When an SME is treated as a corporate obligor under the foundation IRB approach, its risk weight depends on the PD, the LGD and the firm size. The LGD for uncollateralised positions is set at 45% and 75% of the loan and is explicitly subordinated.¹⁹ The level of LGD may, however, be reduced to 0% depending on the collateral (eligible financial collateral, receivables, and commercial and residential real-estate will receive respectively an LGD of 0% and 35%). Under the advanced approach, the bank is allowed to estimate the risk parameters of an SME exposure. Further, the internal estimates of LGD may lead to lower capital requirements if collateral exists. For uncollateralized positions, the advanced approach may lead to higher capital requirements as the LGD is not limited to 45%. As for EAD and maturity, the internal estimates may vary across banks and lead to more or less capital charges.

When an SME fulfils the qualifying criteria to be treated as a retail exposure, a bank must provide its own estimates of the underlying risk components irregardless of whether it is applying the foundation or the advanced IRB approach. The risk weight depends on the estimates of the PD, LGD and EAD. This would theoretically lead to lowering the capital requirement compared with the risk weight function for corporates.²⁰

4.3.2 The rationale for the Committee's decision

The favourable treatment of SME exposures by the NBCA could be justified by the special characteristics associated with SMEs. Indeed, the concept of different risk-weight formulae for SMEs and large businesses was mainly rooted in the following assumptions:

¹⁸ These two tests are: a) the losses resulting from commercial real-estate lending of up to 50% of the market value and 60% of the mortgage-lending value must not exceed 0.3% of the outstanding loans in a given year; and b) overall losses resulting from commercial real-estate lending must not exceed 0.5% of the outstanding loans in a given year.

¹⁹ A subordinated loan is a facility that is expressly subordinated to another facility. At national discretion, supervisors may choose to employ a wider definition of subordination. This may include economic subordination, such as in cases where the facility is unsecured and the bulk of the borrower's assets are used to secure other exposures (NBCA, para. 257, April 2003).

²⁰ This statement is consistent with the QIS-3 results.

- a) There is a lower default correlation for SMEs; indeed although SMEs are supposed to be riskier on an individual basis than larger firms, implying higher default rates in turn, the coefficient of the variation of default associated with them appears to be smaller. Consequently, the default rates of small firms can be predicted with higher accuracy.
- b) There is a positive effect resulting from diversification when loans to these firms are integrated into a sizable loan portfolio. As SMEs' higher default rates are mainly because of idiosyncratic risk, SMEs' credit-risk can be diversified in a large portfolio. These two attributes mean that when applying good risk-management practices, banks could consider SME exposures, to some extent, as less risky than lending to larger firms.

Default correlations allow the analysis of the extent to which non-borrower specific or systematic risk is responsible for default probability. The financial condition of firms in the same industry or within the same country may reflect similar factors and may thus improve or deteriorate in a correlated trend. In such cases, their defaults would be highly correlated. Furthermore, these common factors are not expected to remain stationary over time as they could be affected by the state of the economy. Hence, the lower the default correlation of firms, the less firms are affected by the same factors and the more the default is related to idiosyncratic or borrower-specific risk.

For both assumptions, the Basel Committee concentrated on the concept of asset-correlation, which is an indicator of the sensitivity of exposures to systematic risk. Theoretical support was provided by Resti (2002), who shows that the use of a lower asset-correlation coefficient for riskier borrowers represents a reasonable way of making the weighting function less steep and reducing the threat of a generalised increase in the cost of credit.

Empirically, research has yielded mixed findings. On the one hand, Lopez (2002) indicated that the average asset correlation is a decreasing function of PD and an increasing function of a firm's asset size. This result tends to confirm that large firms are relatively more sensitive to systematic risk than SMEs. On the other hand, the negative relationship between PDs and default correlation was rejected by Dietsch & Petey (2003), when applied to a sample of French and German SMEs and instead found to be U-shaped for French SMEs and positive for German SMEs. Further, another piece of evidence given by Dullmann & Scheule (2003) when applied to a sample of German corporate obligors suggested that default correlation decreases with firm size; this means that larger SMEs should probably receive a more favourable treatment than smaller ones.

Finally, when qualifying the concessions made by the Committee, it is true that from a macroeconomic perspective, the decision to have an asset-correlation parameter declining with PDs may be justifiable by the desire to reduce the procyclical effects of the new Accord.²¹ From a microeconomic standpoint, however, not only does a too-flat curve have the potential to distort a bank's pricing of risk at a given point in time,²² but the relationship between PDs and asset-correlation is also ambiguous and leads to a possible unfair treatment of larger enterprises as compared with smaller ones. This would suggest that more empirical investigation is needed on the relationships between default correlation and PDs along with default correlation and firm size in all European countries.

²¹ Since procyclicality is driven by the relative slope of the curve, one can achieve only a very modest degree of smoothing without causing significant distortion to relative capital charges across borrowers (Gordy & Howells, 2003).

²² Kashyap & Stein (2003).

In summary, the changes undertaken by the Committee with regard to SME treatment demonstrated an important degree of flexibility. Even though the results of the quantitative impact study attempt an overall reduction of capital requirements for the SME portfolio, it is important to conduct SME-targeted analysis on the impact of the NBCA, given the importance of this sector to the European economy.

4.3.3 The New Basel Capital Accord and SME financing in Europe

In Europe, the majority of SMEs rely on loan financing; however, another option exists for a bank – which is to finance companies through equity, either directly or through venture capital.

Implications for loan finance

The new Basel capital rules will certainly impact the credit conditions for SMEs, but not necessarily by leading to a reduction of credit supply to these entities. The more risk-sensitive pricing introduced by the new rules will entail a certain variance in capital adequacy depending on the individual quality of the borrower. A poor-quality borrower will force its lender to hold more regulatory capital compared with a better-quality borrower, but this does not ban loan financing.

The QIS-3 results showed that irregardless of the category to which the SME exposure is assigned (to the corporate or the retail portfolio), the new regulatory capital rules will yield a lower SME risk weight compared with the existing framework. Yet these results should be interpreted with caution;²³ moreover, the average reduction does not mask a strong variance between banking institutions of different sizes, when adopting the standardised, the foundation or the advanced IRB approaches. These different approaches will certainly generate differences in capital requirements for SME portfolios, favouring to some extent the large internationally active banks that are more willing to adopt the advanced IRB approach and thus benefit from a considerable capital discount on SMEs. This may address the issue of the likely competitive effect that the implementation of the capital adequacy Directive (CAD III) will have on banks offering credit to SMEs in Europe.²⁴

Hence, the existence and the application of sophisticated credit-risk management tools will be a key element for banks to qualify for the advanced IRB approaches and to ensure in turn better risk-management of their credit portfolios, including the exposures to SMEs. Other small or medium-sized banking institutions that have poorer internal risk-management systems and are unwilling to install more sophisticated tools will have to adopt the standardised approach, a fairly improved version of the current capital regulatory rules but one that does not necessarily lead to higher or lower capital charges for the SME portfolio than the current rules. Traditionally, these banks are often active locally and are the main supply sources of external finance to SMEs. While they have a strong long-term relationship²⁵ with their clients based on a local knowledge and experience, (which helps to reduce information asymmetries), they may profit from their local dominant position by extracting ‘rents’ from SMEs.

²³ See Chapter 2.

²⁴ Evidence in the US market for credit to SMEs revealed a relatively minor competitive effect on the majority of community banks that do not adopt the IRB approaches, primarily because the organisations that are likely to adopt the IRB-advanced approach tend to make very different kinds of SME loans to different kinds of borrowers than community banks (Berger, 2004).

²⁵ Boot (2000).

It is also worth mentioning that by offering the opportunity for banking institutions to benefit from the most sophisticated approaches, the new capital adequacy regime will create an additional burden in terms of implementation and learning costs. These costs are better absorbed within a higher-activity volume. This consequence would suggest an acceleration of the consolidation process among small- and medium-sized banking institutions. In Europe, consolidation in the banking sector has already reached high levels, but so far the empirical studies are not sufficient to conclude that banking consolidation is detrimental to credit availability for SMEs.²⁶

Finally, the higher risk-sensitivity introduced in the new capital adequacy regime, while drawing a more precise picture of the creditworthiness of borrowers, is likely to raise capital charges in times of economic downturn. As a result, capital requirements may become a limitation for granting loans to SMEs and others, which in turn could intensify the economic slowdown. The procyclical effect of the new Accord arises from the use of risk-sensitive techniques in the internal credit-risk systems. These effects are certainly different while using the standardised or the IRB approaches. Indeed, according to a study by the Bank of England²⁷ that sought to estimate the extent to which banks would downgrade loans in a recession, the results were that ratings based on Moody's approach lead to little, if any increase of capital requirements, whereas, ratings based on a Merton-type model leads to an increase of 40% to 50%.²⁸ The strong reactivity of the Merton-type model is mainly related to the correlation of the probabilities of default to the economic cycle. Indeed, the probabilities of default are lower when the economic conditions are favourable and higher when the economy experiences a downturn. In their paper, Edward Altman et al. investigated the link between probabilities of default and loss given default and the effects of procyclicality on capital requirements.²⁹ They found that banks that estimate probabilities of default and loss-given default had to reduce their credit portfolios to a larger extent, compared with banks that only estimate PDs and rely on supervisory estimates of LGDs. This finding is clear evidence that the procyclicality of the Accord is more prominent when using the advanced IRB approach. Returning to SMEs, these entities will certainly suffer a lack of financing when the economy is in a downturn. This will have a direct negative effect on growth, suggesting that some corrective measures be put in place to avoid exacerbating the cycle.³⁰

Implications for equity finance

Banks also have the alternative to finance SMEs through equity either directly or by investing in a private equity or venture capital. Under the Basel I Accord, equity positions are risk-weighted at 100%, which does not correctly reflect the underlying risk of such volatile exposures. Instead, under the standardised approach, a general risk-weight of 100% (which can reach 150% at national discretion) is assigned for venture capital and private equity. Under the IRB approach, any equity is subject to a set of approaches. If a bank is using the simple market-based approach, this will entail risk weights of 300% for firms with publicly traded equities and 400% for those with private equities. Otherwise, the other approaches may trigger more differentiated risk weights, which may not be lower than 200% for firms with publicly traded equities and 300% for those with private equities. For some long-term investments or existing positions,

²⁶ See Berger et al. (1998) and Dietsch (2003).

²⁷ Catarineu-Rabell et al. (2003).

²⁸ Similar results were found in Kashyap & Stein (2003); Jordan, Peek & Rosengren (2003).

²⁹ See Altman et al. (2002).

³⁰ See Chapter 6.

exemptions or transitional arrangements may apply and lead to a risk weight of 100%. All other investments will provoke significantly higher capital charges. The treatment of such exposures under Basel II is a reflection of the high amount of risk they involve. Nevertheless, this treatment may limit the attractiveness of this type of financing. The higher charges imposed on direct-equity financing and bank investments in private equity and venture capital business in Europe will hinder banking institutions from investing in such businesses, as they are becoming very costly.³¹

Some SMEs, in particular those developing new technologies ('high-tech' SMEs) and relying to some extent on venture capital financing, will be somewhat affected by this treatment.³² Indeed, developing new technologies is considered to be a risky business in addition to the uncertainty of expected returns and where the problem of information asymmetries is prominent.

To control the overall risks of their investments, the idea of venture capital is to pool different categories of risks into a fund to benefit utmost from the diversification effect. To illustrate this, a study by Mathonet & Weidig (2004) looked at the risk profile of three investment strategies in private equity and venture capital, ranging from direct private-equity investments in a company, to investments in funds and investments in funds of funds (see Table 4.6). The findings confirm the positive effect of diversification for reducing risk.

Table 4.6 Differences in the probability of loss among the various private equity investment vehicles

	Fund of funds	Fund	Direct investment
Probability of total loss	0%	1%	30%
Probability of any loss	1%	30%	42%

Source: Mathonet & Weidig (2004).

For the time being, the Basel Committee followed the assumption that default risk can be measured independently, thus excluding the advantages of diversification when various risks are pooled within one portfolio. This assumption may be somewhat restrictive. The problem of failing to consider the advantages of diversification, at least for equity exposures, is the progressive withdrawal of banks from private equity and venture capital businesses, which can affect 25% of capital committed to finance innovative but risky SMEs.

4.3.4 Measures to promote SME financing

As demonstrated by the analysis, information asymmetries between borrowers and lenders are one of the most prominent financing constraints. The establishment of a long-term relationship based on increased transparency is the backbone of solutions to reduce these information asymmetries.³³ Transparency under the New Basel Capital Accord is a precondition for an effective cooperation between lenders and SMEs. Adopting one of the IRB approaches will mean that banks have to rely extensively on a set of quantitative and qualitative information

³¹ The role of banks in developing the European private equity and venture capital market is essential as banks contribute 25% of all capital committed (EVCA, 2003).

³² According to a survey of European venture capital conducted by Bottazzi et al. (2004), almost 1300 European firms were financed by European venture capitalists. These firms mainly belong to the high technology industry.

³³ See Boot (2000).

provided by SMEs. This information is the key to running the internal rating system properly. Companies that are well managed, well financed and provide timely, relevant information will be in a position to obtain an adequate rating and consequently some adequate credit conditions. Hence, it is crucial that companies understand and accommodate the new capital requirements in order to provide the most relevant information needed by lenders to rate their risk exposures internally (see Box 4.1).

Box 4.1. Steps of a prototypical risk-classification process from a bank's point of view

1. Assessment of a borrower's financial status
 - Result of step 1: Preliminary borrower rating
2. Analysis of management quality
3. Analysis of the borrower's competitive position
4. Assessment of the quality of financial information
5. Analysis of country risk
6. Comparison with external rating information (if available)
7. Analysis of lending structure
 - Results of steps 1 to 7: Final borrower rating and probability of default
8. Assessment of loss in case of default across the various facilities
 - Final result: Facility rating (determination of probability of default and expected amount of losses)

Source: Crouhy et al. (2002).

It is true that the main financing source of SMEs is bank loans and overdrafts. But, relying on only one source could lead to banks having a dominant position. This may be addressed by promoting other sources of financing. As showed by the Exco, Grant & Thornton survey, leasing is among the more frequently used source of external financing by European SMEs after bank financing.³⁴ Yet patterns differ across countries: in the UK and Ireland, SMEs already rely on leasing; in other European countries, bank loans and overdraft financing is more prominent, but with a growing consideration of leasing. According to Stulz & Johnson, (1985) leasing can mitigate the problem of under-investment or credit rationing faced by some companies. Empirical findings based on US firms reached a consensus on the fact that leasing is a financing mode that enables businesses to mitigate agency costs and address information asymmetry.³⁵ Promoting alternative sources of external financing for SMEs could be an adequate response to tackling information asymmetries and avoid some of the potentially adverse implications of the new capital regulatory rules. Despite these factors, the treatment of the leasing business by the New Basel Capital Accord has created additional adverse effects, notably in terms of competitive distortion.

³⁴ See the Exco, Grant & Thornton survey (2001).

³⁵ See Sharpe & Nguyen (1995); Graham, Lemmon & Schallheim (1998).

Chapter 5

Recognition of Physical Collaterals under Basel II The Case of Lease Contracts

Mathias Schmit*

5.1 Role of physical collaterals

In 2002, it was estimated that *new businesses* in leasing rose to more than €199 billion,¹ while the penetration rate of equipment leasing in comparison with total equipment investments in fixed assets reached 15%. Lease financing is particularly relevant for small- and medium-sized enterprises (SMEs), as shown in a study by Exco, Grant & Thornton (2001), which estimates that about 39% of European SMEs use leasing as a means of financing (as compared with 46% for bank loans).

A theoretical perspective on the role of physical collaterals in various sources of financing, such as senior-secured debt and leasing, has been given by many academics. Thus, Stulz and Johnson (1985) suggest that secured debts and lease financing should be able to mitigate the problem of underinvestment, or credit-rationing, faced by some companies. The authors point out that secured debt makes it possible to undertake numerous projects whose current net value is positive, whereas implementing such projects with an ordinary debt would be unfeasible (since they would compete with the existing debt). There currently appears to be a general consensus, based on empirical findings, that secured means of financing are ‘advantageous’ financing instruments in situations where a firm is facing problems of information asymmetry and that these enable businesses to mitigate agency costs (see for example studies by Lasfer & Levis, 1998, based on UK firm sample; see also Sharpe & Nguyen, 1995, and Graham, Lemmon & Schallheim, 1998, based on US firm samples).

5.2 Importance of Basel II recognition of physical collateral for SME financing

Leasing is characterised by the fact that the lessor has the legal title of ownership of the leased asset during the entire lease term. This arrangement, combined with lease specialists’ expertise in secondary markets generally places them in a favourable position to repossess the leased assets in case of default. In this way, physical collaterals largely contribute to the reduction of the credit-risk associated with leasing exposures.

The issue of recognising physical collateral under Basel II in the leasing industry has been addressed from an empirical point of view in a number of studies (see Table 5.1). These studies are meant to collect further information on credit-risk issues in leasing. All five studies are based on different sets of data composed of retail exposures.

These empirical studies confirm that recovery rates for leases are comparable to those for the best senior-secured bank loans. It is worth highlighting that the recovery rates are on average

* Mathias Schmit is at the Solvay Business School. This article is mainly based on the results of an empirical paper to be published in the *Journal of Banking and Finance* (special issue on Retail Credit Risk, April 2004). A preliminary version of the paper was presented at the Conference on Retail Credit Risk management and measurement organised by the Federal Reserve Bank of Philadelphia, 24-25 April 2003, <http://www.phil.frb.org/econ/conf/retailcreditrisk/programnew.pdf>.

¹ Leaseurope (2002).

more than 70% for automotive leases. Moreover, in some cases, recovery rates may exceed 100%, as the resale value of the leased asset can be higher than the outstanding amount at default.

Table 5.1 Empirical studies on credit risk in the leasing industry

	Schmit & Stuyck (2002)	Schmit (2003)	Degouys, Delzelle, Stuyck & Wautelet (2003)	Schmit (2004)	Pirotte, Schmit & Vaessen (2004)
Sample	37,259 contracts	35,861 contracts	28,784 contracts	46,732 contracts	4,828 contracts
Origin	12 institutions (6 countries)	1 institution (A)	1 institution (B)	1 institution (A)	1 institution (A)
Timeframe	1976–2002	1990–2000	1997–2001	1990–2000	1990–2001
Type of contracts	Automotive, equipment, real estate	Automotive	Automotive & equipment	Automotive, office equipment, medical equipment and other equipment	Automotive
Focus	Recovery rates	PD, LGD, loss distribution (CreditRisk +)	PD, LGD, loss distribution (Bootstrap)	PD, LGD, loss distribution (Bootstrap)	LGD and residual value

Notes: PD refers to probability of default and LGD refers to loss-given default.

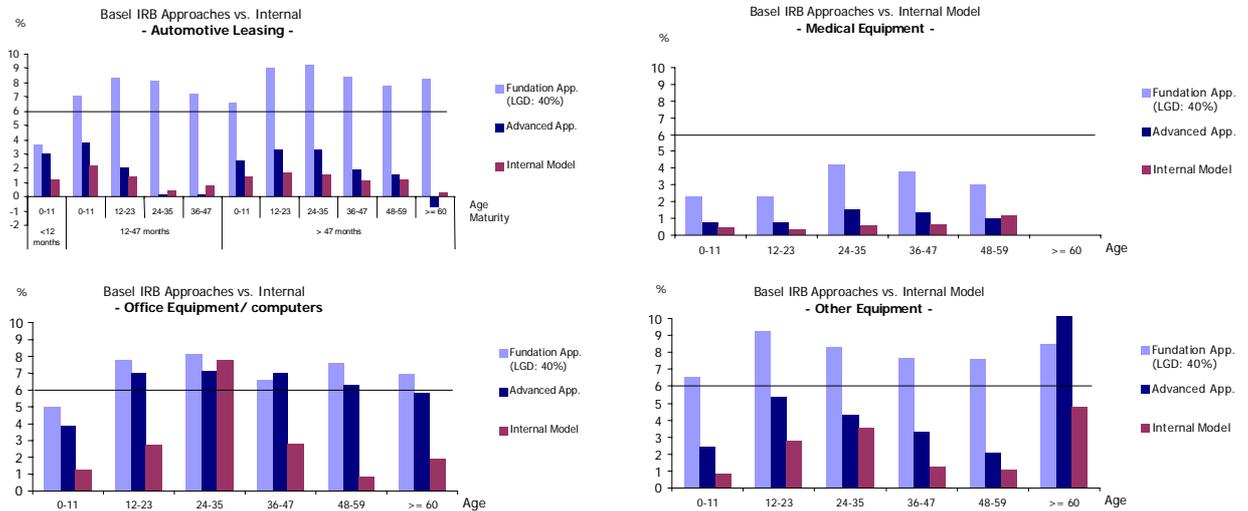
Four of the studies in Table 5.1 concentrate on loss distribution in leasing and stress the importance of the role played by physical collaterals in reducing the credit risk associated with lease portfolios. These obtain consistent conclusions while using not only different data sets but also two different loss distribution estimation methods (CreditRisk+ and Bootstrap). Empirical results from Schmit (2004) are presented in Figures 5.1a, 5.1b, 5.1c & 5.1d below. These figures illustrate the simulations on capital requirements as calculated on the basis of re-sampling methodology and of the Basel proposal's internal ratings-based (IRB) approaches.

These graphs show that:

- The standard approach (dotted line on the graph) as well as the IRB foundation (light blue bars on the graph) and IRB advanced approaches (dark blue bars on the graph) lead to capital requirements that are significantly higher than requirements calculated according to the internal model (violet bars on the graph).
- There is a contradiction with the Basel II objective to provide reasonable² incentives in terms of capital relief for banks to adopt a more sophisticated approach: the IRB foundation approach (light blue bars on the graph), although more advanced than the standard one, will lead to higher regulatory capital requirements for a significant portion of the segments studied (except for medical equipment, as shown in Figure 5.1b).

² The EU Commission's third consultative paper (CAD III) has changed the word 'reasonable' to 'appropriate'.

Figures 5.1a, 5.1b, 5.1c & 5.1d. Comparison between IRB regulatory capital requirements and capital requirements derived from internal model



Source: Schmit (2004).

The large discrepancies in capital requirements observed among the three different approaches of the new capital adequacy framework can partly be explained by the absence of adjustment to the capital requirement for retail portfolios under the IRB foundation approach and the low relief granted for physical collaterals.³ It implies that for leasing companies wishing to move from the standard to a more sophisticated approach, there would be no other options than i) to adopt the IRB foundation approach as a transitional strategy despite the significant increase in capital requirements involved for retail portfolios; or ii) directly move to the IRB advanced approach. Companies adopting the most advanced approach will, however, have to meet the challenge of collecting sufficient and reliable data in order to build their internal models. As only a relatively small number of financial institutions will be able to directly opt for the IRB advanced approach, the lack of recognition of physical collaterals could generate a distortion of competition in the equipment-financing industry. Furthermore, given the amount of resources and data needed to complete the implementation of the IRB advanced approach and gain the supervisor's approval, a significant number of European leasing companies are unlikely to be able to opt for the second option as from 2006.

Another crucial issue relates to the capital requirement calculated on market risk, in addition to the one calculated on credit risk for lease contracts exposed to residual-value risk. This puts companies at a disadvantage. Indeed, when returns on leased assets are carefully monitored and residual values are set conservatively – as should be the case given the minimum requirements for the recognition of physical collaterals – the weighting ratio should be adapted to a more realistic level than the proposed 100% weighting ratio, as shown in a research carried out by Pirotte, Schmit & Vaessen (2004).

³ Under the standard approach, eligible physical collaterals are limited to real estate; under the IRB foundation approach, the capital relief granted is constrained by a regulatory floor to loss-given default (LGD) adjustment (a maximum decrease in LGD from 45% to 40%).

Additionally, financial institutions should comply with a large number of minimum requirements so that certain types of risk-mitigating tools are recognised. Yet these requirements may not be adequate for leases and other exposures characterised by the presence of collaterals. For instance, the requirement set under Basel II to carry out individual assessment of lease assets in the form of a periodic physical inspection takes into account neither the peculiarities nor the very nature of lease contracts. In fact, since specific provisions for the leasing industry are not clearly set in the regulatory framework, some confusion among professionals of the industry arose around the question as to exactly which approach should be used to observe these minimum requirements.

When looking at the recognition of physical collaterals, the issues mentioned above highlight the need for further refinement of the Basel capital adequacy framework. Indeed, since the specificities of the leasing sector are not adequately taken into account, SMEs do not entirely benefit from the advantages that this financial source could offer them. Further, in its current version, the framework may not be able to create a genuine level playing field, because it implies that different means of financing with similar underlying risk may be assigned different capital requirements according to their form rather than their economic substance.

Chapter 6

Procyclicality and Dynamic Provisioning

Frank Dierick*

6.1 The concept of procyclicality

The concept of procyclicality used in the context of banks' lending activities refers to the phenomenon that their loan business tends to follow the same cyclical pattern as that of the real economy, i.e. strong growth in an economic upturn and slow growth or even a decrease in an economic downturn. Banks' profitability follows a similar procyclical pattern because loan provisions and losses typically fall in a boom (thus having a positive impact on profitability) and rise in a recession. This is explained by the present bank practice to make only loan provisions and write-downs when credit losses are likely to occur or have actually materialised.

In behaving this way, the banking system further amplifies business cycle fluctuations, which raises a number of concerns. *First*, it can lead to a misallocation of resources and sub-optimal investment behaviour. In an economic upturn projects with a negative net present value may be financed, while in a downturn even positive net present value projects may be rejected. *Second*, systemic risk could increase. A typical illustration is the fuelling of an asset bubble through generous credit conditions and higher collateral values. The subsequent deflation of the bubble may cause a banking crisis and a credit crunch. *Third*, there is an international dimension to be considered as banks' lending responses to domestic cyclical movements affects their international business, thus carrying the risk that a crisis is exported. *Fourth*, as credit risks only manifest themselves in banks' accounts after the upswing during which they have been built-up, the disciplining of banks by the market and supervisors may prove to be more difficult.

6.1.1 Possible causes

Although the issue of procyclicality has come very much to the fore in the recent debate about the new Capital Accord, it is important to note that even without a solvency regulation, the banking system tends to behave in a procyclical way. The academic literature has identified a number of possible explanations, which are rooted in problems of asymmetric information and market imperfections. Most of the explanations can be grouped under the headings of human psychology, business practices and regulations.

People have a tendency to put excessive weight on recent events, to underestimate high-loss low-probability events ('disaster myopia') and to interpret information in such a way that beliefs are reinforced. These psychological factors lead to a misperception of risk, in particular to the assumption that prevailing booms (or busts) will continue and will also affect loan officers' lending decisions. Herding behaviour can also play a role as banks may want to avoid the potential costs of separating themselves from their peers.

Short-term perceptions may likewise be stimulated by certain business practices. For example, up-front bonuses that have not been adjusted for risk may be paid-out to generate loan business, the bank may focus on capturing market share instead of pricing for the full risk of the loans and loan officers' ability to assess risks may deteriorate over time (e.g. because a new generation of officers has emerged that have not yet experienced a loan bust). An important business practice

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is the acceptance of collateral as a way to reduce asymmetric information problems in lending. As asset prices increase, asymmetric information problems become less of a concern, which increases the financing possibilities for intrinsically less-creditworthy participants. In the case of a fall in asset prices, lenders again become more concerned about information problems and may resort to credit rationing to avoid adverse selection.

Finally, regulations can also have procyclical effects. Accounting and tax rules may stimulate banks to make loan provisions or write-downs only when credit losses are likely to occur or have already materialised. This will lead to increasing profits in a boom (or decreasing profits in a bust), which in turn affects lending behaviour. Thus regulations should give particular attention to solvency requirements.

6.2 Procyclical effects of solvency requirements

6.2.1 Under Basel I

Procyclicality concerns have already been voiced in the context of the Basel Capital Accord of 1988, in particular with respect to the impact of credit provisions and losses, as well as the composition of banks' own funds.

Banks' specific loan provisions and losses increase when an economic downturn occurs. If a bank's existing general provisions are insufficient, this will result in a decrease of its own funds and solvency ratio. As the bank grows closer to its minimum required level of its own funds (as determined internally or fixed by supervisors), it may want to rebalance its solvency ratio again. This can be done either by increasing its own funds or by reducing the volume of risk-weighted assets, which in practice amounts to reducing the loan volume. But in an economic downturn, capital may be more expensive or even unavailable for weaker institutions. The bank may also be concerned about the possible negative signalling effects of tapping the capital market in these circumstances. Cutting the loan business may therefore be the preferable option to the bank, thus reducing the financing possibilities of firms when they are most needed. In that context, it should be noted that a reshuffling of the loan portfolio from more to less risky corporate borrowers was not really an option under the old Accord since all such borrowers were weighted at 100%.

The procyclical effect can also work through the composition of the bank's own funds. The Capital Accord of 1988 provides for the possibility to include certain asset revaluation reserves in the supplementary, so-called 'tier 2' capital. Such revaluation can arise either in the form of a formal revaluation of banks' own premises or in the form of 'latent' revaluation reserves, which result from the practice of holding securities at historical cost. The Basel Committee accepted that these latent reserves could be included in the capital basis after a discount. In an economic upturn, when asset prices generally soar, the revaluations would therefore increase banks' lending potential and the reverse would happen in an economic downturn. This factor may, for example, have affected the lending behaviour of Japanese banks, which traditionally hold large equity portfolios.

6.2.2 Under Basel II

Procyclical concerns have received more attention with the review of the Capital Accord that is now underway. The whole debate is also a clear illustration of the growing awareness in the supervisory community of the potential macro-impact of micro-prudent regulations.

A major feature of the New Accord is its increased risk-sensitivity, as inter alia reflected in risk weights that better reflect the credit conditions of the counterparty and the wider recognition of

the risk-reducing effect of collateral. Procyclicality concerns have been especially voiced in the context of the internal ratings-based approach (IRB), but to a lesser extent also for the standard approach, for which the new Accord provides. Under Basel I there were fewer concerns since the debtor's credit quality did not have an impact on the risk weights used within the broad categories of counterparts (e.g. sovereigns, banks and corporates).

Under the IRB approach, banks use their own estimates of the probability of default (PD). With this input, a risk weight can be derived from a supervisory-defined risk weight curve. This ultimately determines the own funds that the bank has to set aside for exposures on this borrower. It has been argued that banks use so-called 'point-in-time' estimates for their PDs, meaning that the estimates are usually based on the borrowers' current conditions and are valid for only a short time horizon of one year. This bank practice can be explained by data availability, accounting and tax conventions, etc.

As a result, banks' PD estimates are very much influenced by the present state of the economy, thus making risk weights cyclically sensitive and causing capital requirements to increase in a downturn. Banks could therefore face increasing capital needs in periods when capital is most costly and may as a result choose to reduce assets or reshuffle their portfolio towards less risky debtors, thus deepening the downturn. So if banks do not hold capital buffers on top of the minimum regulatory requirements, they may become vulnerable to increasing risks. Holding such buffers is already a well-established practice, but under the IRB approach banks could need significantly higher buffers than before to avoid the situation in which the minimum requirements become binding.

There is less concern under the standard approach, which is built around external assessments provided by rating agencies. Ratings are 'through-the-cycle' estimates of credit quality and therefore have a longer perspective. The ratings are assigned on the basis of assessed borrower performance under a standardised stress scenario. Nevertheless, it has also been noted that in an economic upturn the number of rating upgrades is higher than the number of downgrades, and the reverse occurs in an economic downturn. Moreover, external ratings have experienced significant swings in times of financial crises, such as the Asian crisis of 1998. External ratings are therefore not completely free of procyclicality effects.

Finally, procyclicality can also work through the broader pool of eligible collateral provided for under Basel II. Apart from loans secured on residential property, Basel I only granted a lower risk weight to loans secured by cash, securities issued by OECD central governments and specified multilateral development banks. Under the new Capital Accord, most types of financial instruments, including some equities, are recognised as collateral and advanced IRB banks have even more flexibility.

6.3 Possible measures to address concerns

The Basel Committee is well aware of the potential procyclical effects of its new capital framework and has tried to address it in various ways. Further, supervisors and banks may already apply techniques to address these concerns. The most frequently used techniques are:

- *Flattening the risk weight curve.* The risk weight curve transforms the PDs into risk weights for certain types of exposures. The steeper the curve, the greater the effect of a given change in the PD on the risk weight, or the greater the risk sensitivity of the capital framework. This may well be justified from a risk-management perspective, but it also increases procyclicality. An obvious way to reduce this risk is therefore to flatten the curve, with the trade-off that the risk sensitivity also decreases. This technique has been used by the Basel Committee to calibrate the capital framework on the basis of the outcome of the quantitative impact studies.

- *Through-the-cycle ratings.* Instead of using ‘point-in-time’ estimates of PDs, banks could be encouraged to use a longer time horizon in assigning ratings, while at the same time keeping the integrity and ‘signalling power’ of their internal risk-management systems. This is exactly what the Basel Committee tries to do by requiring that a borrower rating must represent the bank’s assessment of the borrower’s ability to perform contractually despite adverse economic conditions and unexpected events. The bank can satisfy this requirement, either by basing its rating assignments on specific appropriate stress scenarios or by taking into account the borrower’s vulnerability to adverse economic conditions without explicitly specifying such a stress scenario. Additionally, the historical observation period used to estimate the PDs has to be at least five years in principle. There is the risk that when the new capital framework is introduced banks may not yet have established sufficiently long data series for through-the-cycle estimates, so that at this particular point in time the risk of procyclicality could be higher.
- *Stress-testing.* As previously mentioned, stress-testing can be used to adjust PDs for the effect of adverse economic conditions. The Basel Committee also requires an IRB bank to use stress tests in the assessment of its capital adequacy. The stress test should at least consider the effect of mild recession scenarios on the bank’s PDs, LGDs (loss-given defaults) and EADs (exposures at default). The tests may result in corrective measures taken by the bank, such as a shift in portfolio composition or the building-up of additional capital buffers. National supervisors may wish to give guidance to their banks on how such stress tests should be designed, bearing in mind conditions in their jurisdictions. The Basel Committee may also want to monitor developments in this field and come up with more concrete guidance.
- *Tightening lending standards and loan monitoring in the upswing.* It has been argued that banks’ risks are the highest at the peak of an economic upturn and only manifest themselves subsequently through higher loan provisions and losses. This phenomenon would argue for stricter lending standards and a more rigorous supervisory review during the expansive phase. One way of doing so is by applying lower ‘loan-to-value’ ratios, a technique that was successfully used by the Hong Kong authorities to prevent increasing property prices from further fuelling a real estate boom and to safeguard the banking system in the wake of the Asian crisis. Other supervisors may not be comfortable with such an approach because of ‘level playing field’ considerations and concerns about the interference in the individual policy of banks that otherwise may be financially sound. Another suggestion is that banks and supervisors could adjust the way they monitor loan portfolios. For example, junior loan officers and bank inspectors could be more exposed to loan work in the early phase of their career, and more seasoned staff could review loans that have not experienced problems over a sustained period to identify more subtle indicators of weakness.
- *Capital requirements that are a function of the state of the economy.* Instead of having a fixed-solvency standard, the regulatory capital requirements could be made dependent on prevailing macroeconomic conditions. Thus in an economic downturn, capital requirements would decrease while in an economic upturn they would increase. Nevertheless, if supervisors are given too much discretion to adjust the requirements this also carries the risk of *ex-post* regulatory forbearance. It is therefore important to specify *ex-ante* when such adjustments can be made as well as to what extent. Technically, several techniques have been proposed to achieve such variable capital requirements, for example by using time-dependent risk weight curves or by the counter-cyclical indexing of the minimum solvency

ratio. Obviously, the selection of an appropriate metric to accurately assess the state of the economy will also be an important factor to the application of this technique.¹

- *Building up additional capital buffers.* By building up capital buffers on top of the minimum capital requirements, banks can create more slack in their lending behaviour and will therefore be less pressured to reduce loan activity in a downturn. Banks can do this on their own initiative or be requested to do so by supervisors under the second pillar. Some supervisors, such as the UK's Financial Services Authority, apply this technique already by using a target-solvency ratio in combination with a minimum-solvency ratio. Under this regime, the bank is required to meet the target ratio in normal economic conditions, however, if general economic conditions require change, a bank can be allowed by the supervisor to go under the target as long as the minimum ratio is still met. In a way, the dynamic provisioning idea discussed below is another illustration of the build-up of additional capital buffers.

6.4 Dynamic provisioning

Dynamic provisioning is based on the underlying idea that from a statistical point of view, a bank is certain to incur credit losses from the moment that it originates loans. In order to account for this, the bank should be forward-looking and ideally make provisions over the whole life of the loan for the losses it expects to incur. The provisions set aside in each accounting time period should be based on an estimate of the long-term expected loss as supported by statistical data, which is why this provisioning technique is sometimes called 'statistical provisioning'. The provision would then build up in any year in which actual losses fell short of expected losses (economic upturn), while in years in which the actual losses exceeded the expected ones (economic downturn), the provision would be drawn upon. Current accounting and tax practices, however, often do not acknowledge the economic reality just described and are as a rule backward-looking, only allowing loan provisions and write-downs when credit losses have actually occurred or are likely to do so in the near future.

Some of the major international banks already use dynamic provisioning and a number of supervisory authorities have either made such a system compulsory or are considering introducing it. Spain was the pioneering country in Europe when it introduced its statistical provisioning method in 1999, the motivation being the boom in the Spanish economy at that time and the concern that loan-loss provisions were not growing sufficiently to match the increased credit risk. Under the Spanish regime, banks can calculate their statistical provision by using their own internal models or by using a standard method defined by the supervisor. The former is based on the bank's own data and risk assessment, which poses a challenge for the supervisor to verify whether such models measure credit risk properly. The latter divides loans into six categories with different risk weights fixed by the supervisor on the basis of historical experience. The dynamic provision in Spain is subject to an upper limit; the provision is not tax deductible and is not included in the regulatory capital base. Banks are also required to disclose information on this provisioning.

In addition to the fact that it better matches economic reality and provides banks with incentives for improved risk-management, dynamic provisioning should lead to lower volatility in banks' profit and loss figures, thus ameliorating concerns about procyclicality. It may further lead to a more accurate pricing of credit risk and better calculations for capital requirements. A crucial factor in the success of the technique is the reliability of the estimates of expected losses, and in

¹ See Gordy (2003) and Kashyap & Stein (2003).

that respect the data challenges are considerable. In practice, it will be difficult to identify the economic cycle and to distinguish it from the trend; further, there is the risk that banks may want to manipulate estimates for profit-smoothing purposes. The previously mentioned accounting and taxation principles also continue to be major obstacles.

Sometimes, dynamic provisioning is put forward as a more realistic alternative to the use of full fair-value accounting in banking. It should be recalled that fair value is the cornerstone of the IAS (International Accounting Standards) framework that European-listed companies have to comply with from 2005 onwards for the preparation of their consolidated financial statements. One of the consequences of a wider application of fair value is that upward as well as downward revaluations of financial instruments are reflected directly in banks' (regulatory) capital, thus affecting their lending potential. This impact revisits the procyclicality concerns mentioned earlier.

Chapter 7

Implementation of the New Accord in the EU

Karel Lannoo*

Financial regulation has become a topical issue in EU policy-making. With the Financial Services Action Plan (FSAP), the European Commission managed to re-draft an important part of EU financial services regulation, using new procedures and raising awareness of the importance of a single financial market for the European economy. The implementation of Basel II in EU law was one of the 42 legislative measures of the FSAP. Although some 37 of these have been completed at the time of writing, no agreement will be reached on the new capital adequacy Directive before 2005 (the target date of the FSAP), which is in any case independent of the wishes of the EU Commission.

7.1 Basel II in EU legislation

As with the 1988 Accord, Basel II will be implemented in the EU in the form of a directive and thus be formally applicable to all EU-licensed banks. It will also be applicable to investment firms for their ongoing capital requirements, furthering the objective to maintain a level playing field with the trading departments of universal banks. A directive is a legal EU instrument that is binding for member states with regard to the results to be achieved, but leaves the national authorities the choice of form and methods. It thus needs to be transposed into national law.

As the 1988 Accord was fairly simple and straightforward, so was EU legislation. The main pieces of legislation, as far as banks are concerned, were the own funds (Directive 89/299/EEC) and solvency ratio Directives (Directive 89/647/EEC). The former defines the items that can be included in the banks' own funds calculation. It is composed of 'tier 1' capital, which is the capital of the bank and the disclosed reserves, and 'tier 2' capital, being revaluation and undisclosed reserves, general provisions and subordinated debt. The solvency ratio sets a minimum required ratio of 8% for all EU-licensed credit institutions from 1 January 1993 onwards. It is measured as the proportion of own funds of the risk-adjusted value of a bank's total assets and certain off-balance-sheet items, as defined in the Basel I Accord.

Overall, Basel I was well implemented in the EU and did not give rise to much controversy. The main problems with Basel I related to the treatment of special banks (cooperatives) in certain member states and the weighting of mortgage loans and bonds. With regard to the latter, an optional generalisation of the 50% weighting was agreed in 1998, whereas it only applied to residential mortgage loans and in certain member states before.¹

The first complication of the prudential framework arose with the 1993 capital adequacy Directive (CAD I, Directive 93/6/EEC), which set minimum capital requirements for investment firms. These rules were also applicable to the trading books of universal banks, if these institutions choose not to subject their total business to the more demanding solvency ratios Directive (SRD). The CAD follows the building block approach for measuring market risk: risk in interest rate and equity instruments is added to counterpart and settlement risk to calculate the total risk exposure. A further complication arose with the 1998 adaptation to allow for the use of more sophisticated internal risk-management models by banks and investment firms, the so-

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¹ See Directive 98/32/EC of 22 June 1998.

called ‘value-at-risk’ models (CAD II, Directive 98/31/EC). This followed the 1996 market risk amendment to the Basel Accord. An important feature of the CAD II is that it required the results of the institution's own capital requirements calculation to be scaled up by a multiplication factor of at least three (Annex 7, §6).

A first draft of a directive for the transposition of Basel II into EU law, together with the third consultation paper, was published by the European Commission in July 2003.² The draft directive will modify many provisions of Directive 2000/12/EC, which consolidated EU banking law in a single text, including the provisions of the own funds, solvency ratio, CAD I and CAD II Directives. It will hence continue to be applicable to banks and to the ongoing capital requirements of investment firms – the initial capital requirements being set in the investment services Directive. In its working document, the Commission stresses the need for a flexible framework, to allow updates of the technical aspects “to reflect ongoing market, regulatory and supervisory innovation” (p. 7). The Commission has structured the document in two parts: the first of these, the Articles, contain the principles and central rules governing the issue in question; the second part, the Annexes, contain the more detailed technical implementation measures. The Commission Services envisage that the Articles will only be amended by co-decision. The provisions contained in the Annexes will be subject to amendment by comitology procedure. Unlike the Lamfalussy procedure, however, the full document, meaning articles and annexes, will be passed following the co-decision legislative process – apparently for reasons of accountability.

Table 7.1 A brief overview of the Basel Accords in EU legislation

	Number of articles	Articles open to comitology	Total word count (including recitals and annexes)
Basel I (1989)	10 (own funds Directive) 13 + 3 Annexes (solvency ratio Directive)	None Definitions and items in the classifications (annexes)	3,439 5,290
CAD I (1993)	15 + 6 Annexes	None (never implemented)	14,649
CAD II (1998)	4 + 7 Annexes (amending CAD I)	Idem	7,490
Basel II or CAD III (2003, draft)	146 + 12 Annexes	Mainly annexes, articles not yet specified	ca. 141,000 67,000 without annexes
ISD II (2002, draft) <i>(for reference)</i>	67	18	25,556

Table 7.1 above gives a snapshot of the Basel Accord in EU law. It documents how the wordiness and complexity of the different directives have grown, and how it is likely to further grow through the extensive application of comitology to the CAD III. In the past, comitology only applied in a limited way to the own funds and solvency ratio Directives, for which the

² See European Commission (2003d).

Banking Advisory Committee (BAC) existed.³ It did not apply to CAD I and CAD II, since a ‘pre-Lamfalussy’ Securities Committee could never be constituted owing to the political and procedural problems between the European Commission, Council and Parliament.⁴ This contributed to the creation of the Forum of European Securities Commissions (FESCO) as an intergovernmental body (December 1997) and later to the establishment of the Lamfalussy Committee, and to a new Committee structure, including the European Securities Committee (ESC) and the Committee of European Securities Regulators (CESR) to replace FESCO.

7.2 The Lamfalussy Committee structure

Further to the Council conclusions of 3 December 2002, the European Commission decided on 6 November 2003 to extend the Lamfalussy approach to banking and insurance.⁵ The Lamfalussy approach is seen to be successful and adapted to market needs. Concretely, this means for banking regulation that legislative measures will be drafted, further to broad consultation, by subdividing them into essential elements: principles (level 1) and technical implementing measures (level 2). The implementing measures will be adapted using the comitology procedure. It requires the creation or adaptation of committees to assist the European Commission in its implementation work. In the area of banking, it has led to the creation of the European Banking Committee (EBC), to replace the Banking Advisory Committee (BAC), and the Committee of European Banking Supervisors (CEBS), to provide advice to the European Commission on level 2 implementing measures and to enhance cooperation between national supervisory authorities (level 3).

The Lamfalussy approach has, however, only been in force since February 2002, when it was approved by the European Parliament, and the first measures following the new procedure, the market abuse (2003/6/EC) and prospectus (2003/71/EC) Directives, have yet to come into effect. Implementing measures have only been formally adopted for the market abuse Directive. Thus it is still early to judge its effectiveness, and even more so to evaluate other elements of the new process, such as the cooperation between supervisors (level 3) and better enforcement (level 4). Nevertheless, based on the first two years of experience with the new securities markets Directives, some general observations can be made.

On the positive side, the new approach has significantly increased the cooperation amongst supervisory authorities (see Table 7.2). Not only do ministry of finance representatives have to sit together when discussing draft directives, supervisors now also meet to discuss implementing measures. This should certainly have a positive effect on levelling the regulatory playing field. It increases the degree of regulatory harmonisation and reduces the possibility for host-country restrictions. At the same time, supervisors are aware that their respective financial centres are still in competition with each other and that they need to ensure that regulation is in line with market needs.

³ The BAC has acted in its comitology role only on four occasions – see European Commission (2003d), Working Document CAD III, § 1.2.1.

⁴ See Lannoo (1999), pp. 34–36.

⁵ Proposal for a Directive of the European Parliament and of the Council amending Council Directives 73/239/EEC, 85/611/EEC, 91/675/EEC, 93/6/EEC and 94/19/EC and Directives 2000/12/EC, 2002/83/EC and 2002/87/EC of the European Parliament and of the Council, in order to establish a new financial services committee organisational structure, 6 November 2003.

Table 7.2 Strengths and weaknesses of the Lamfalussy procedure

Strengths	Weaknesses
<ul style="list-style-type: none"> • Forces supervisory authorities to cooperate, convergence of supervisory practices • Competition among supervisory authorities: there is a constructive ambiguity between regulatory cooperation and competition • Increases the transparency of the regulatory process • Higher degree of regulatory harmonisation • Reduces possibilities for host-country restrictions 	<ul style="list-style-type: none"> • No clear rule to differentiate between framework measures and details • Laborious and complex process • Time-consuming and resource-absorbing process for the authorities as well as for the private sector • Increases the opportunity for regulatory capture • Higher degree of centralisation: the European Commission has the final word and the role of national supervisory authorities is limited (only advisory)

Because of the need for consultation at the different levels of the process, the regulatory procedure has also become much more transparent. Financial regulation has become more accessible. This has, however, at the same time increased the inherent complexity of the process. Owing to the requirement to consult at several stages, the regulatory process has become very laborious and complicated. It is both very time consuming and resource absorbing, for regulators as well as for the private sector to be involved in all the stages and to remain alert. This is especially the case for smaller member states and for small firms. Those who care about following the process from the beginning can possibly influence the process the most, although it could be argued that this was not visible in the past. A final remark is the danger of too much centralisation. The European Commission is, in implementing the measures, free in principle to accept or reject what the supervisors propose; it also chairs the comitology Committee. If the proposals of the European Convention are accepted, the control of the European Commission over implementing measures will be further strengthened, as comitology is formally abolished in Art. 35 of the draft treaty.⁶

The former procedure predicts a mixed outlook for the implementation of Basel II in European law. More cooperation between banking supervisory authorities, beyond the strategic level, is certainly of utmost importance. A harmonious implementation of the Accord should allow for a real level playing field in the EU and avoid the distortions that could result from the approach of the supervisory review process. The requirement for supervisory authorities to work closely together and consult on proposals for the implementation of Articles and Annexes, as is being done in the context of the new securities markets Directives, will bring a sea change to the limited regulatory and ad-hoc supervisory cooperation in place at present (or on which very little is known). It should avoid the danger of conflicting approaches under the supervisory review process (the second pillar) and reduce differences that concern whether banks are active on a cross-border level in the EU through branches or subsidiaries. It should in the medium term lead to a single European rule book for supervisory authorities and allow banks to come to a

⁶ See the Future of Europe Convention (2003).

single form of supervisory reporting.⁷ It would thus create 'economies' for both supervisors and banks: supervisors would be better informed about banks active in different jurisdictions and banks could integrate supervisory reporting requirements.

On the more critical side, two major points emerge. The implementation of the Basel II framework in EU law will further increase the complexity of the process. What was already laborious and heavy in the Basel framework, will become even more so in EU implementation. It suffices to look at the first pieces of EU law following the Lamfalussy approach, such as the market abuse, the prospectus or the investment services Directives. The latter Directive, in its coverage of level 1, was already double of the size of the previous Directive and risks becoming even more complex following the adoption of the implementing measures by the European Securities Committee. If the European Commission sends the CAD III in its entirety through the co-decision procedure, the risk is not imaginary that some, albeit minor technical items, will be further changed as a result of intensive lobbying of some pressure groups.

A second point is the rather elaborate committee structure and the possible overlap of competences. The CAD III deals with banks and investment firms, meaning that both the banking and securities committees are in charge of dealing with the implementing measures. A clear division of tasks will thus be needed. A related issue is that comitology has a different role in banking than it has in securities markets. Cooperation between regulators has, by tradition, been more developed in banking than in securities markets, in the Basel Committee and the 1972 Contact Committee for example. Banking regulation is by definition more specific and less 'soft' than code of conduct rules for brokers. In the past, supervisory cooperation in banking had a more ad-hoc nature and related to particular cases of a bank active in different jurisdictions. In the context of the Basel implementation, supervisors will need to demonstrate that they can make a quantum leap towards a much more elaborate form of cooperation.

All the experiences with the Lamfalussy Committee are so far based on an EU with 15 member states. With the accession of ten new member states formally coming into force on 1 May 2004, debates on financial regulation will change somewhat. The accession countries of Central and Eastern Europe have a less-developed banking market and a less elaborate structure of financial supervision. Although their banking markets are largely foreign-controlled, most banks are separately incorporated as subsidiaries or separate entities and thus locally supervised. The Polish banking supervisor has already indicated that they will only apply the standardised approach, because of a lack of resources. A single supervisor reporting in the EU is thus not immediately on the books, at least in its enlarged dimension.

7.3 Interaction between EU and global implementation

Back in 1989, when the single market was under construction, a reciprocity provision in the key financial services directives caused uproar in some non-EU countries. It was argued that the EU was becoming a fortress, since access to the EU market would only be granted to non-EU institutions provided they give comparable access to their market. Some 15 years later, it seems that comparable access in the implementation of the Basel Accord is hindering European banks in the other direction. EU-based banks will have the full set of options for implementing the Basel Accord, depending on their preferences and capacities, but in other countries they will be subject to national treatment or worse, subject to the discretion of local supervisors. This will

⁷ On the single rulebook, see the speech by Fritz Bolkestein, at the joint PricewaterhouseCoopers/CEPS/FESE conference, Brussels, 13 November 2003. The Brouwer II report criticised the lack of harmonised supervisory reporting in the EU member states and the lack of coordination of crisis-management procedures.

not only create a competitive distortion for EU banks active in non-EU countries, it will also hamper integrated risk-management and supervisory reporting within these groups, with all the negative consequences this may entail.

The US position of applying only the advanced internal ratings-based approach of the new Basel Accord to some 20 internationally active banks and to apply Basel I to all the other banks, is distorting the level playing field for EU banks in the US market. The justification that internationally active banks control 99% of the foreign assets (in the assets held) in the US banking system does not take into account the significant stake of EU banks in the US banking system.⁸ It will distort competition and prevent EU banks from applying a single risk-management model, and thus may also have negative implications for global systemic stability as well. As it also creates distortions between the two tiers of US banks, however, it is likely that a solution will emerge from inside the US. Nevertheless, it may be useful if the EU Council of Finance Ministers discussed this matter and proposed some action, as was done in the context of the Sarbanes-Oxley Act.⁹

Another asymmetry with the US implementation, i.e. the application of Basel II to investment firms in the EU, seems to be nearing a more integrated approach further to the draft Securities and Exchange Commission (SEC) rules concerning supervision of broker-dealers on a consolidated basis.¹⁰ This would imply that capital charges for broker-dealers that are part of a holding company are calculated on a net basis. They would also be allowed to use internal models for these calculations, following the Basel proposals. This consolidated supervision would also apply to investment bank holding companies. This move was warmly welcomed by the European Commission.¹¹ But, it is uncertain at this stage how 'equivalent' the US approach will be.

The need for consistency in the application of the different approaches applies not only in an EU-US context, but also globally. Home and host-country supervisory authorities need to cooperate closely to ensure an integrated application of the new Basel framework. Supervisory authorities in developing countries may lack the skills to apply the IRB approaches to third-country banks active in their territory or may prefer not to do it for competitive or market-structure reasons. Different approaches in countries with largely unsophisticated banks may leave the latter with the lower quality loans. Cross-border implementation has been addressed by Basel's Accord Implementation Group (AIG), but its principles leave host-country authorities to impose national treatment, duplicating reporting requirements.¹²

⁸ In his speech before the New York Institute of International Bankers on 10 June 2003, Federal Reserve Vice Chairman Roger Ferguson said that national treatment would apply to non-US banks operating in a US context, while opening some possibility for the advanced IRB and advanced management approaches (AMA), in which case they would have to meet the "same infrastructure requirements" as other US banks.

⁹ The Council of Ministers, meeting on 3 June 2003, strongly opposed the mandatory registration of EU audit firms with the US Public Company Oversight Accounting Board, a decision that apparently had effect.

¹⁰ "The SEC proposes rules concerning broker-dealers and affiliate supervision on a consolidated basis," *SEC News Digest*, Issue 2003-192, 8 October 2003.

¹¹ Patrick Pearson, Head of Unit, European Commission, at the joint PricewaterhouseCoopers/CEPS/FESE conference, Brussels, 13 November 2003.

¹² Principle 3 of the AIG states that "host country supervisors, particularly where banks operate in subsidiary form, have requirements that need to be understood and recognised", which fully recognises national treatment.

The problems with the global acceptance of the Accord raise the issue of the how representative the Basel Committee is. A more balanced representation of countries, reflecting the importance of the global banking system, would enhance the credibility and effectiveness of the Basel Committee. EU member states, which today account for nine out of the 13 members of the Committee, could take a step in this direction by proposing reform to their representation, to reflect the growing importance of the EU in financial regulation – and at the same time come to a more balanced representation of the Committee by including representatives of supervisors from some larger emerging countries. This would enable the Committee to meet its original ambition of global financial stability. We would, however, not argue for a change towards a more formally appointed body, as this would reduce its effectiveness.

7.4 Interaction with the move to international accounting standards

The problems raised by the interaction between accounting and prudential rules have only recently started to emerge on the policy agenda. The international accounting standards (IAS) regulation was formally adopted by the EU in July 2002. It requires EU-listed companies and issues on EU capital markets to prepare consolidated accounts in accordance with the IAS from 2005 onwards or to explain the equivalence of domestic rules with those of the IAS. By the end of 2002, only some 275 EU-listed companies were applying the IAS. The goal is to increase this number to encompass the estimated 6,000 EU-listed companies by 2005 – an enormous shift in itself.

The IAS regulation empowers the European Commission, assisted by the Accounting Regulatory Committee, to decide on the applicability of the IAS. It states that the IAS can only be adopted if the standards are conducive to the European public good and if they meet the criteria of clarity, relevance, reliability and comparability of financial information. Each adopted standard will be published as a Commission regulation (Art. 3). So far, the EU has agreed to the adoption of all standards (on 16 July 2003) with the exception of IAS 32 and 39, the crucial standards for the financial services industry.

The core difficulty with IAS for financial institutions is the fair-value principle. Although the application of this principle is limited so far for banking groups, it remains an option in the latest exposure draft of IAS 39, implying that the IAS Board (IASB) is pursuing the extension of fair valuation in the medium term to all financial institutions. This increases the volatility of a bank's balance sheet and raises the problem of differences between the own funds definition used by accountants and regulators. Seen in combination with the increased cyclicality of the internal ratings-based approach of Basel II, the application of fair value would further aggravate cyclical effects and lead to increased disintermediation. Banks would be less inclined to transform short-term savings into long-term investments and an essential element of the bank-based financial system would disappear.¹³

¹³ Michel Pébereau, “Accords de Bale 2 et nouvelles normes comptables IFRS: Quelles perspectives pour l'industrie financiere européenne”, speech at the European Parliament, 20 January 2004.

Chapter 8

Getting the Best out of Basel II for the European Banking System

David G. Mayes*

The extended consultation and assessment process for Basel II has been valuable, not just because it has been possible to improve considerably upon the original proposals, but also because it has highlighted a set of issues that banks and regulators alike have to tackle over the coming years. Some of these can be addressed in the way that the EU and individual countries decide to implement the Accord and develop new regulations and supervisory practices, but other issues need to be considered as part of the wide-ranging review of the regulations of the single market for financial services.

This chapter of the Task Force Report considers just four issues:

- the concept of a level playing field and the wish to ensure fair competition both among financial institutions and their customers;
- the need to manage the scope for supervisory discretion under the second pillar;
- the need to improve coordination among the authorities to handle complex multinational financial institutions; and
- the need to go beyond the basic disclosure requirements in the third pillar to enable market discipline to operate effectively. This implies two main areas for action in addition to the quality and relevance of the material to be disclosed, namely,
 - improvements in corporate governance to ensure that market signals are not merely observed but acted upon; and
 - an effective and predictable set of procedures for handling weak or problem banks, so that those that are solvent but under-capitalised are swiftly returned to adequate capitalisation and those that are insolvent are immediately exited without the need for taxpayer funds, irregardless of their size.

This last issue takes us full circle, for if these conditions are not met, banks that are permitted to operate below the Basel limits or are thought likely to be subject to forbearance or bailout will have not just a comparative advantage but will be open to moral hazard and greater risk-taking, thus contradicting the primary objectives of the Accord. The three pillars need to work together in supporting the system.

8.1 Implementing Basel II

In implementing Basel II, authorities around the world will be seeking to ensure compliance with the minimum prudential standards and to give their banks encouragement to become sufficiently well managed so that they can employ more advanced risk-management methods and hence reduce their capital charges. In that way, efficient international banks will be able to gain a competitive advantage. The US decision to apply Basel II just to the ten or so largest

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institutions and to permit around ten other banks who can demonstrate the need and ability to join them if they choose (Ferguson, 2003) illustrates this point very clearly. The Accord is supposed to represent not just good risk-management practice but the highest standards of supervisory practice as well. The US regards itself as following the best supervisory practice at present. Hence enacting Basel II generally would achieve nothing, as the standardised features of the first pillar, the requirements of the second and third pillars are already effectively being applied. It is only where Basel II offers a reduction in capital charges for US banks that adoption is worthwhile.

The position in the European Union/European Economic Area is (EU/EEA) not the same. Current supervisory practices are not at present universally compliant with the second pillar or with the disclosure requirements of the third pillar. Applying Basel II generally would imply a widespread increase in risk-management and supervisory performance. Hence the Commission has decided on a general application. Is this going to be to the disadvantage of EU/EEA banks, their customers and general welfare? This question leads us directly to our points below.

8.1.1 Ensuring a level playing field and fair competition

In choosing how to regulate that part of international services that falls within a particular jurisdiction, attention must be paid to the regulatory choices of other international participants. Sub-optimal regulation is likely to drive business away rather than have it more prudently run. This is not a case of a rush for the bottom, as customers are seeking a greater guarantee of good risk-management practice. Outside some areas of operational risk, Basel II rewards better risk-management, so incentives are quite well-aligned. Both insufficient and excess regulation will be penalised. It suffices to consider the position of the Japanese international banks, for example.

Because of their generally smaller size and greater internationalisation (given that the euro is not taken as defining a border) a considerably larger number of banks in Europe will be able to benefit from applying the more advanced approaches. Indeed, the European Commission (2003e) in its assessment of the third quantitative impact study (QIS-3) suggests that these gains will accrue to most banks given the different risk weights for various assets. This benefit is anticipated even without considering those of improved management and monitoring systems. There is, however, a danger in believing that the only way to have fair competition is for all financial institutions to be subject to the same regulation. It has already been noted that the application of the same capital charge procedures to firms covered by the investment services Directive will place EU/EEA investment firms at a disadvantage compared with their US counterparts (Calomiris & Herring, 2003). Factors other than regulation give different institutional forms different advantages. The systemic issues that make banks 'special' and justify extra regulation to protect the wider society do not necessarily apply to fund management.

Similar concerns have been expressed by other non-deposit-taking companies in specialised areas such as leasing, where exposures are limited, given collateral and insurance (Leaseurope, 2003). These issues apply more widely to the EU approach to financial regulation (see Alexander, 2003) on the subject of securities markets) and do not relate specifically to banks, which is the subject of Basel II. Thus rather than extend this blanket approach, which may inhibit the provision of narrower services to customers and hence increase their costs, it might make more sense to reconsider the general principle. It is not, after all, a requirement of large 'federal' areas, as the US illustrates. Banks are being given the option of choosing the regime (Ferguson, 2003). Different classes of financial institutions face different systemic risks and hence risk-sensitive supervision implies more than one regulatory regime.

8.2 The second pillar

The implementation of the second pillar provides one of the biggest challenges because this section is based on principles. There is no accepted way to approach it and supervisors can be expected to follow quite different paths. It is not at all clear in advance how supervisors will conduct the review or how comparable it will be across the various jurisdictions in the EU/EEA. It ought to assist the risk-management of banks in two respects, first by offering a second opinion on what is being done. Since supervisors could add further capital requirements if systems are inadequate or risks are not captured fully by the procedures under the first pillar, there are incentives for improvement. Nevertheless, there could also be incentives for ‘regime shopping’ if supervisors react differently to the same information. While the Finnish Supervisory Authority is deliberately trying to make the process open and predictable so that banks can minimise their costs of preparation and can have some basis for action against the authority if it appears not have been fair, it is unclear at this point what the general approach is going to be.

It may be sensible to carefully analyse how the quality of the supervisory process will be assessed. The CAMELS ratings in the US are not disclosed. It is not clear whether the supervisory assessment or any requirement for further capital will be disclosed in the European environment. Yet doing so would produce strong incentives for good risk-management and good supervisory processes.

8.2.1 Coordination issues among European authorities

Consolidated supervision is difficult for complex international banks as information has to be put together from a variety of supervisors and jurisdictions. It will be particularly confusing if supervisory reviews are confidential in some countries and the results published in others. It will also be difficult for the lead supervisor to add up the discretionary decisions of the various host-country authorities if there is not some modicum of uniformity and communality of reporting the results. This need for consistency could lead to more pressure towards the EU/EEA-level of regulation of such multinational groups or at least to some means of achieving greater compatibility with the systems of the lead regulator. This strategy later may be an easier way forward as it permits the development of regional supervisory relationships that reflect the structures of the largest banks that are supervised. The Nordic supervisors have had to organise the supervision of their largest banks among themselves irrelevant of any outside pressures. Some clear thought on how the coordination of the second pillar is to be achieved is needed at minimum.

Some of these cross-border issues are being addressed by the Basel Committee's Accord Implementation Group (AIG) (Basel Committee, 2003e). Nevertheless it remains the case at present that supervisors in different jurisdictions could permit different levels of sophistication of modelling methods among the parts of a cross-border banking group. Brouwer et al. (2003) emphasise that it will require far more than simple case-by-case memoranda of understanding if the European supervisory authorities are to be able to present an efficient framework to complex cross-border banks and offer a plausible programme of action in the event of difficulty.

8.3 Ensuring market discipline – going beyond the third pillar

The third pillar of the draft Accord is very much the least regarded, yet if the Accord is to work as intended all three pillars need to support the structure. While comparisons of the number of pages in the draft on each pillar may be a little simplistic (Rochet, 2003) they make a clear point. The pages on the third pillar are little more than a list of the type of information that should be disclosed. There is no attempt to explain what market discipline is thought to be or

how it may work. Disclosure is indeed an essential ingredient to functioning market-discipline but it by no means ensures it. Market discipline can operate when those who have a stake in a bank, whether as customers, creditors, owners, employees, etc., can act on the basis of the information they have, through observable movements in prices or quantities to impel bank managements to improve their risk management.

There are thus three essential steps in this process:

- stakeholders have to have adequate information on what is going on at the bank;
- they have to be able to react to that knowledge in some kind of market, be it the product, labour, debt, equity or other markets; and
- that reaction needs to be observable and management must respond.

There are many examples of where these three steps do not apply at present in Europe. Where they do not, the Accord will be weakened. Some banks do not need to seek an equity listing and do not need to make active use of bond markets for funds. Mutual organisations offer a well-known source of difficulty, as it is not at all clear how one would change the management of an organisation with a highly dispersed ownership.

The essential word at the outset is the stakeholder. If there is to be any effective action in the markets people must have something at stake – they must expect to suffer loss if risk is badly managed. This is obvious for groups such as shareholders, directors, depositors and employees but it will extend more widely to rating and supervisory agencies as well as borrowers. A rating agency will not wish to see its reputation dented by failing to pick up a change in the quality of a bank. Similarly, supervisors will be held to account if there are lapses in their monitoring systems and hence they may be among the keenest to see action by management in response. Indeed they may be one of the few groups with the power to compel it. It is also important to note that it is both quantities and prices that matter in market signals. If some of the key trading teams exit a bank, that is strong sign, as indeed is withdrawal from the subordinated debt market.

Thus in implementation it is essential that the focus goes beyond the need for disclosure of ‘sufficient, comparable, accurate and relevant’ information, if that disclosure is actually going to affect risk management. Even so it is debatable how relevant the information currently planned for disclosure is going to be. If it is released every six months, with a lag, unaudited and with only average values for exposures with little forward-looking information, then it is not clear what its value will be. The emphasis on explaining how risk is managed is certainly welcome but there seems to be little emphasis on the responsibility of the board for the quality and accuracy of the statements. As is also reflected in the provisions of the Sarbanes-Oxley Act, it is essential to get the board to sign off on the information and to be liable for its content. Independent non-executive directors play a key role in this regard as they will want to be very well informed about the way processes are actually applied before they are prepared to attest to them.

Indeed it would be helpful to look at the experiences of New Zealand, which has been operating a disclosure regime since 1996. There the incentive for ensuring high quality information is strong, as directors can be imprisoned for up to three years for false statements and are civilly liable for losses made as a consequence. Disclosures are quarterly, audited six-monthly and include peak exposures so observers can see how often things have gone wrong and the effects this may have had.

8.3.1 Corporate governance

Corporate governance issues lie at the heart of effective market discipline. The structure of the banking group needs to be such that there can be some knowledge of and influence on its banking operations through the market. It has already been noticed in the US for example that requirements to issue subordinated debt are not going to be very effective if the holding group is the issuer, thus binding up the bank's risks with those of all the other parts of the group. Similarly the bank may have no effective equity market. If there are strong cross-holdings and inter-relationships, the feed-through to individual responsibility for risk management can be weak. The board may be too distant from the management of the banking operations for control to be effective.

The same may be true if there is no effective market for corporate control. In the main it is difficult for anyone other than another bank to acquire a bank. It is difficult for others to pass the tests of being 'fit and proper persons', especially if transactions have to be undertaken quickly in the face of difficulty. There is a tendency in European countries for supervisors to deal with managements and to try to impose discipline directly, rather than dealing with boards and allowing the normal processes of corporate discipline.

The great advantage of market discipline is that it is continuous and does not require infraction of any rule or capital limit for it to be triggered. A bank that is simply under-performing can be the source of takeover pressure, as was the case of National Westminster and Midland in the UK. Supervisory intervention may only come when it is too late – the unexpected realised and the capital lacking. Even rating agencies tend to be lagging indicators, following market signals rather than being their initiators.

8.3.2 Prompt corrective action and exit

For Basel II to be really effective there needs to be a network of incentives for banks not merely to run themselves prudently but to continue to improve their risk-management methods. While there are incentives for the largest banks in terms of being able to move to the more advanced approaches and reduce their required capital charges, similar pressures need to apply to all banks, particularly the weaker ones. The explicit treatment of weak banks by the Basel Committee (2002b) focuses on actions that the authorities can take once a bank has become under-capitalised or indeed insolvent. Yet the more effective incentive comes from the mandatory imposition of unpleasant regulatory actions should a bank find itself in difficulty. Such rules for action are intended to be primarily deterrent in character and only rarely applied. Nevertheless, for the rules to be credible banks need to be certain that they will be enforced, whatever the circumstances or size of the bank.

As things stand in many of the EU/EEA countries at present, such strong enforcement mechanisms seem unlikely for a variety of reasons; hence, Basel II may lose its punch. First, in some countries, there is a history of recent bailouts, as in the Nordic countries or France for example. Second, few administrations have in place a comprehensive system of prompt corrective action as in the US. Thus the role of the authorities in the event of current or imminent trouble is difficult to predict and not carefully prescribed. In some cases this is cloaked in the idea of 'constructive ambiguity'. It is argued that if the nature or indeed the existence of public sector support is unclear, banks will act as if it is not available. Yet it is much more likely that precisely the opposite will occur in such circumstances and banks will think that they can make a special case should they ever fall into unfortunate circumstances. Such ambiguity is thus anything but constructive and will generate the sorts of moral hazard and the behaviour that Basel II is designed to reduce.

A further and more worrying reason for a lack of belief in European authorities' willingness to take firm action is that they lack the ability where banks run across a wide range of jurisdictions. In the first place it is by no means clear that the memoranda of understanding and other information-sharing arrangements necessarily provide the material required to anticipate difficulties or to act swiftly should such difficulties occur. The time at which cooperation among the authorities is most important is when the problems are incipient and the confidential information has the greatest value. When the problem is known, market prices will already have moved firmly against those in difficulty and recapitalisation will be noticeably more expensive. If regulatory intervention is restricted to that period then there will be incentives for forbearance as market solutions are more difficult to achieve.

But even if the various authorities can cooperate they face serious unresolved difficulties over how any support is to be provided, as the authorities in the country of the lead supervisor may be very reluctant to provide funds for creditors in other jurisdictions. Only the Swiss authorities seem to have tackled this issue (Hüpkes, 2003) and limited the extent to which the insurance fund can pay out – a measure clearly aimed at the degree of their exposure to Credit Suisse and UBS. In this case the authorities cannot afford to bail out such large banks – they are too big to save rather than too big to fail. The same logic can, however, be extended to the other banks in the system. No bank is really too big to save if its problems can be detected early enough and can be resolved in a manner where it does not stop trading. An obvious approach is to follow the US example: give the authorities the power to takeover a bank that is economically insolvent, wipe out the existing shareholders and write down the loans, respecting the order of priority, up to the point that the bank becomes solvent again (Mayes et al., 2001).

If the system is incomplete and Basel II is not backed up by prompt corrective action for weak banks and a robust exit policy for those that are unlucky enough to become insolvent, then the pressures from the three pillars will be noticeably weakened. In particular, banks thought likely to be bailed out will face a lower cost of funds than their unprotected rivals, thus tilting the playing field.

8.4 Conclusion

The new Basel Accord offers an important opportunity to improve the quality of risk management and banking supervision in the EU/EEA. If implemented effectively, it is also likely to reduce the capital charge for many banks as a result. The full gains will only be realised, however, if all three pillars are able to operate effectively together in a wider framework of financial regulation. The third pillar in particular could easily be ineffective and the second pillar confusing in the face of a variety of interpretations and implementations. The Basel framework is likely to prove beneficial, nevertheless, if part of a more complete system of oversight, as in the US. Indeed it is instructive that the US authorities only see the need to implement Basel II where there is a source of gain for their largest international banks. Wholesale implementation across the more fragmented regulatory environment of the EU/EEA could impose costs rather than net benefits on banks, thereby incurring competitive losses in internationally tradable areas such as investment banking.

Without a matching effort on the coordination of supervision, the establishment of effective valuation standards, the development of prompt corrective action and effective means of bank exit, the incentives for better risk management by banks will be weakened. Supporting action in implementing *all three pillars* is thus merited within the EU/EEA. While it would be possible to produce a long list of possible measures this chapter highlights just six:

- The EU/EEA is implementing Basel II in an internationally competitive banking environment. While the overall aim of the Accord is to improve standards of risk

management by banks, it is intended to reward the best standards by compensating reductions in the capital charge. Permitting some choice of regime may enable banks to find the most cost-effective framework for good risk management.

- The quantitative impact and other studies have revealed the extent to which the banking system has procyclical tendencies. While the new Accord should not add to them, it should make sure the risks are clearly revealed and emphasise the need to manage them.
- The implementation of the new Accord needs to measure the changes in valuations clearly and encourage management techniques and supervisory rules, particularly in areas that encourage prudent responses such as provisioning, rather than hiding the volatility and hence increasing the extent of surprises. A forward-looking approach to the management of economic capital needs to dovetail with the inherently backward-looking accounting treatment.
- The second pillar greatly increases the role of supervisors, but in the fragmented environment of the EU/EEA, the discretion entailed from having general principles could increase the cost and complexity of regulation. Considerable progress is required not just in coordination among supervisors but in improving the transparency of what supervisors require and treating individual cross-border banks in a coherent manner.
- Europe will need to take the lead in addressing the treatment of cross-border, complex financial institutions as their relative importance is much greater than in the US, which will seek to impose its own rules on the institutions within its boundaries.
- Finally, the third pillar is likely to be muted in the EU/EEA unless there are improvements in the framework of corporate governance, which not only allows price and quantity signals to emerge but ensures that the stakeholders in the bank can actually force change. Unless the third pillar is supported by a viable regime of prompt corrective action for weak banks and swift exit for economically insolvent banks, the incentives to better risk management in Basel II will easily be undermined by moral hazard.

Concluding Remarks

The New Basel Capital Accord will undoubtedly have a deep impact on the European financial system. It should strengthen the resilience of the financial system by bringing regulatory capital much closer to economic capital and wipe out the distortions of the weightings in the 1988 Basel Accord. It has already set in motion a process of rationalising and streamlining the credit-risk assessment procedures in European banking and should lead to a much better calibration of risk. It will force small- and medium-sized enterprises to manage their finances much better. In this sense it should contribute to improving the general shape of the European financial system.

The fact that Europe will occupy a rather 'lonely' position in the implementation of the Accord should not be seen as a disadvantage. On the contrary, it is a worthy challenge to render the European banking system more sound. US authorities are right in pointing out that the US banking system is far better capitalised than the one in Europe. On average, the European banking system has a ratio of 6% capital to assets, as compared to 9% in the US (2002).¹ When viewed in connection with the higher degree of bank dependence, an increase in overall capitalisation levels can be welcomed from a financial stability perspective. To ensure this happens, however, a strict and harmonised implementation of the Accord is important. A lax transposition of the Accord in EU member countries will not improve the competitiveness of the European banking system. Hence it could be argued that the Basel II process is only starting in the EU. The capital adequacy Directive (CAD III) process and technical advice on implementing measures by the Committee of European Banking Supervisors will need to be monitored carefully to allow the benefits to materialise.

Unlike the 1988 Accord, the New Basel Accord has become part of an evolutionary process in banking supervision where risk calibration will be adapted to take into account the progress in banking and risk-management techniques. The new European regulatory framework is adapted to this and should allow for the emergence in the medium term of a European rule book for banks. Reflecting the growing importance of EU financial regulatory matters, a logical consequence would be to reform the composition of the Basel Committee. Such reform would at the same time be an opportunity to come to a more balanced representation of the major banking markets. This would further strengthen the authority of the Committee in the coming decades, which is likely to see fairly significant shifts in the economic importance of nations and regions.

¹ International Monetary Fund (2004), *Global Financial Stability Report*, IMF, Washington, D.C.

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