

Financial stability and the New Basel Accord

PIERRE-YVES THORAVAL, ALAIN DUCHATEAU

General Secretariat of the Banking Commission

General Banking System Supervision

This study outlines how proposed changes to international capital adequacy standards – commonly referred to as “Basel II” – will reinforce financial stability.

Basel II is designed to contribute to the prevention of individual bank failures by making minimum capital standards more flexible and aligning them more closely with actual risks and changes in the level of risk.

By bringing regulatory capital closer to the concept of economic capital that banks use in their internal management, and by going to the core of banks’ financial information systems, the proposed changes will foster better control of risks.

By reducing credit disruptions, the changes should help to limit the severity of macro-economic and sectoral downturns and thereby improve financial stability.

Concerns have been expressed about the potential “procyclicality” of the new standards, and the possibility of sharp swings in regulatory capital requirements leading to dramatic shifts in the availability of credit. These concerns, while theoretically appealing, do not appear warranted in practice.

The Basel Committee took steps early on to ensure that cyclical effects would be moderated, while still achieving the goal of making capital ratios more risk-sensitive, more closely related to the bank’s management of its “risk-return” tradeoff, and therefore more useful as an internal control tool.

In contrast with Basel I, which is external to banks’ methods of management, Basel II incorporates an advanced IRB approach. It can therefore figure as a central element in banks’ strategic planning.

The success of the proposed changes will depend on how they are applied by bank managers and on the vigilance of bank supervisors in overseeing their implementation. Numerous contacts and on-site examinations carried out to date are encouraging in this regard.

A hoped-for reform in the rules on provisioning, consistent with the new capital standard – factoring in ex ante the impact of expected but unrealized credit losses over the credit cycle instead of concentrating them at the lowest point of the cycle – would contribute significantly to financial stability.

In April 2003, after five years of work and numerous consultations, the Basel Committee on Banking Supervision published its third consultative document setting forth proposals for reforming the international Accord on banks' capital

adequacy. This document, and the consultative processes that individual national supervisors have conducted in parallel, have drawn comments and proposals from all interested parties, making it possible to envisage final adoption of Basel II at the start of 2004.

Box 1

The provisions of Basel II

The new capital adequacy ratio ¹, Basel II ², rests on three pillars:

Pillar 1 increases risk sensitivity in the calculation of exposures and the resulting capital charge, with the goal of improving micro-prudential stability.

Three methods are proposed for measuring credit risk:

- the "standardised approach" (SA) based on external credit ratings,
- the relatively simple "foundation internal-ratings based" approach (FIRB),
- the more sophisticated "advanced internal-ratings based" approach (AIRB).

In the last two approaches, capital charges are based on the internal credit ratings that banks assign to their counterparties.

A bank's overall capital requirement is obtained by adding the capital requirement for credit risk to separately calculated requirements for market risk and operational risk.

Pillar 2 refines the assessments made under Pillar 1.

It consists of:

- the bank's analysis of risks not covered by Pillar 1 (interest-rate risk, liquidity risk, concentrations, "stress tests") and a review of actions that it should take to manage those risks (additional capital, provisioning, internal control or risk-management measures);
- the bank's calculation of the amount of capital it needs to support its activities (economic capital), possibly using methods different from those used to calculate regulatory capital;
- the bank supervisor's assessment of the bank's risk profile, which the supervisor compares with the bank's own assessments (see points above); and the supervisor's identification of any additional requirements that should be imposed, whether in the form of capital requirements in excess of minimum requirements or other suitable measures.

Pillar 3 improves financial transparency in order to promote greater market discipline.

Supervisory approval to use the internal ratings-based approach is conditional upon the bank's complying with the disclosure requirements of Pillar 3.

A fourth Pillar recognising the possibility of setting provisions against expected but unrealised losses would help to improve consistency between prudential and accounting aspects of bank regulation, but this step cannot be undertaken until there is greater international harmonisation between accounting and prudential standards.

¹ The capital ratio is the ratio of regulatory capital on the liability side of the bank's balance sheet to the sum of the bank's risk-weighted assets. This ratio must be at least 8%.

² See also "Overview of the New Basel Capital Accord" on the site of the BIS: <http://www.bis.org/bcbs/cp3ov.pdf>.

In Europe, the text published by the Basel Committee should be reviewed in 2004 in the form of a draft EU directive. Once adopted, the directive will be transposed into French law through a regulation. As from 31 December 2005, banks will be required to provide bank supervisors with two calculations of their capital ratios, based on the current and future methods. Final implementation of Basel II in Europe is currently scheduled for 31 December 2006.

While it is widely recognized that the new prudential standards will improve the prevention of individual bank failures, concern has been expressed about the macro- and mesoeconomic consequences of the reforms. This has led the Basel Committee to introduce several measures designed to reinforce global financial stability.

1| The new prudential framework will help prevent individual bank failures

By aligning capital requirements more closely with actual risks and providing incentives to improve risk management, the proposed reforms strengthen the foundations of every bank, and thus should be seen more as an opportunity than as a burden. The fact remains, however, that better risk management requires, as a prerequisite for efficiency, better data and the adoption of the new methods throughout the banking community.

Having surveyed major banks in industrialised countries, the Basel Committee concluded that there was not yet an accepted standard for full credit-risk modelling which it could use as the basis for its regulatory framework. For this reason, the Committee indicated that it would reopen the issue of credit risk modelling at a later date, leaving time for banks' work on this subject to achieve greater convergence.

1|1 A new system for measuring regulatory capital that better reflects banks' risks

The internal ratings-based approaches bring regulatory capital closer to economic capital, the concept used by banks to allocate capital among different lines of business and to measure their risk/return¹ trade-off.

In the meantime, the internal ratings-based approach can provide the foundation for economic capital requirements.

In the course of 2003, information-gathering missions conducted by the General Secretariat of the Banking Commission at major French banking institutions revealed a broad diversity of approaches to defining and using economic capital. In every institution, however, the parameters used in Basel II² constituted the fundamental elements of the calculation.

However, regulatory and economic capital cannot be perfectly matched up, because the objectives pursued by bank supervisors and banks are not identical.

By aligning regulatory capital more closely with economic capital, Basel II enhances banks' safety while simplifying their management. Financial stability is also reinforced by the fact that the supervisory parameters in Basel II are continuous variables, which substantially reduces "cut-off" effects compared to the current situation.

Indeed, supervisors are concerned not only with overseeing individual credit institutions, but also with ensuring the overall financial stability of the banking system.

1|2 An opportunity for strategic risk management

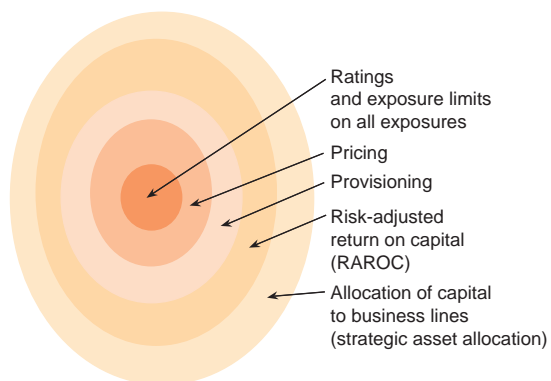
This difference in objectives can explain the different approaches adopted by supervisors and banks regarding the recognition of the benefits of diversification or the treatment of double-default risk in guarantees.

Because internal ratings systems are at the core of the process of credit allocation, they provide the foundation for establishing a comprehensive system of strategic asset allocation.

¹ See for example Bank of Spain.

² See the glossary at the end of this article for definitions of these parameters.

Diagram 1
How internal ratings systems determine structure



As indicated in diagram 1, this approach makes it possible to obtain a detailed calculation of the probability of default of each customer, and of the loss the bank will incur from each transaction if the customer defaults (after taking into account risk-mitigation techniques: collateral, guarantees, hedges, netting, etc.).

The internal ratings approach can be used to estimate both unexpected losses and mean expected losses.

It would therefore be desirable to develop, on the basis of these elements, a policy for monitoring exposure limits, a pricing policy (with pricing based on risk-adjusted return), and a mechanism for setting provisions based on mean expected losses, and to measure the performance of each line of business and the amount of economic capital needed to support them.

Appropriate procedures, based on these principles and applied from the level of individual credit officers on up to senior managers, will enable the bank to establish a common language across all lines of business, which facilitates the communication of strategic planning goals. All types of risk (credit, market, operational, and other risks) are measured and interpreted using the same “yardstick”, making for comparisons between different lines of business and facilitating the dialogue between the bank and its supervisor concerning the three Pillars of the Accord.

1|3 The need for higher quality data and a general adoption of reforms throughout the bank

The multiplicity of options offered in Basel II encourages banks to improve their risk management techniques, since banks that adopt more advanced methods are eligible for slightly lower capital requirements. Using data collected from banks in G10 countries (the “third Quantitative Impact Study” or QIS3), the requirements of Basel II have been calibrated in such a way as to give banks a modest incentive to move to the more advanced methods, while at the same time maintaining the current overall level of capital in the global banking system.

In the internal ratings-based approach, the bank decides whether it will model all or only some of the variables. Greater use of the bank’s own internal estimates of loss parameters is possible, subject to validation by the supervisor. This greater flexibility is accompanied by more stringent qualitative standards for the information systems used in assigning and monitoring grades (tracking of ratings, independent review of rating assignments, audit trails, monitoring of the consistency of internal ratings assigned in different parts of the banking group, and reconciliation of risk-management and accounting data).

Thus, the internal ratings-based approach requires a significant investment in reliable and comprehensive financial information systems, and internal controls of the highest quality.

It is essential that senior bank management present the Basel II reforms as an opportunity for each line of business to meet its business objectives, and not simply as a tool for the departments responsible for risk management. Thus, for example, enriching the bank’s data on customer default and loss rates can lead to a better understanding of customer characteristics, more precision in tailoring offerings and marketing to “prospects”, and more accurate pricing of risks. For financial managers, the allocation of bank capital can be based on an objective measure of risk-adjusted return. And the public disclosures required under Pillar 3 can permit greater transparency and a richer dialogue with analysts and investors.

The next section of this study outlines some of the concerns that have been expressed in the course of the Basel II consultative process regarding possible detrimental effects of the reforms. The final section of the study describes the actions taken by the Basel Committee to address these concerns.

2| Concerns about the reforms focus on their macro-economic consequences

2|1 Procyclicality

“Procyclicality” refers to the notion that capital requirements could increase the severity of the economic cycle. It is generally recognized that the credit cycle is correlated with the economic cycle: the credit cycle is characterized by a pronounced increase in loan-loss provisions and a contraction in the supply of credit during periods of recession, and a decline in provisions and resurgence in lending during periods of growth³. The concern has been expressed that Basel II could amplify the credit cycle, and that this in turn could amplify the economic cycle. This concern rests on the notion that fluctuations in the credit ratings of bank customers would translate into variations in capital requirements, stimulating lending in periods of growth and constraining credit in periods of recession. Moreover, the contraction in credit induced by Basel II would impact all credit-seekers simultaneously, and would be felt all the more sharply because it followed a period of easy credit during the preceding period of growth. The result would be to exacerbate the decline in economic activity.

This debate on the procyclicality of ratings-based systems first surfaced in the context of the use of external ratings in the new standardized approach. Although the rating agencies indicated that it was their practice to rate “through the economic cycle”, several studies contested that claim, pointing to a rise in the frequency of rating downgrades during periods of recession.

More recently, a review of internal ratings assigned by large international banks has shown a diversity of approaches. Some banks base their one-year credit ratings on the stock prices of their counterparties, using “KMV” – type models of firm value. This method of rating “at a point in the cycle” leads to a large variation in internal ratings over time.

Other banks seek to assign ratings that reflect the same probability of default over a medium-term horizon that incorporates the possibility of economic

recession, and they compare these ratings with those produced by the external rating agencies. Such a philosophy of rating “through the cycle” leads to greater stability in ratings over time.

In France, the ratings systems used by large banks favor the objective of stability through the cycle in the ratings assigned to firms, while incorporating information – particularly market information – that might lead the bank to revise a rating.

Some banking economists have argued that regulatory capital requirements should be fixed or even counter-cyclical (Persaud, 2002) in order to reduce systemic risk, instead of more sensitive to the business cycle as would be the case under Basel II.

A static comparison between Basel I and Basel II ratios would indicate that the former depends only on exposure volumes (the amounts of credit outstanding) and is completely insensitive to variations in counterparty credit quality (except in the case of defaults resulting in the recording of write-offs or provisions), while the latter depends on credit quality, as reflected in the credit ratings of counterparties, as well as on exposure volumes.

An analysis which stopped at that observation would conclude that, for banks whose internal ratings vary with the business cycle, the new ratio is more volatile than the old ratio.

However, the analysis must also take into account the way that banks will adapt to the new regulatory framework. They will manage their Basel II ratio dynamically, not just adjusting their capital levels, but also managing the amount of credit outstanding – for example through classic and synthetic securitisation and the adoption of risk-mitigation techniques – so as to reduce their risk exposures. Increasing capital and cutting back on new credit are but two ways among many to respond to fluctuations in the ratio; other alternatives can easily be implemented.

³ For a stylized explanation of procyclicality, see for example Berger and Udell (2003).

Box 2**Example of the reduction in regulatory capital**

The example concerns the securitisation of a portfolio of bank loans granted to firms, with the portfolio totalling EUR 100 million.

Before securitisation

In the case of the current "Cooke" ratio, the prudential capital charge is:
 $100 \times 100\% \times 8\% = \text{EUR } 8 \text{ million}$

After securitisation

In the case of the new ratio, a classic securitisation with the most subordinated tranche deducted from capital (equivalent to a risk-weight of 1,250%) is liable to lead to a EUR 5 million reduction in regulatory capital requirements.

(in EUR millions)			
Tranche	Rating	Amount	Capital requirement
Classe A	AAA	92	0
Classe B	AA	2	0
Classe C	BBB	2	0
Classe D	BB	1	0
Equity tranche	Unrated	3	$3 \times 1,250\% \times 8\% = 3$
Total		100	3
Capital requirement for the bank after securitisation and risk transfer			3
Regulatory capital freed			5

The critical advantages of the new ratio are, first, that it functions as a key element in the bank's strategic planning process, incorporating a prospective dimension, rather than simply being computed ex post; and second, that the charges which it imposes are proportional to risk, which ensures responsiveness and progressivity in the behaviour of banks and thereby improves financial stability.

The experience of the past ten years indicates the need for improvements in the current capital framework. Economic and financial crises have many causes, but the banking system and its regulation play a key role. Because the "Cooke" ratio was not a part of banks' strategic planning processes, it could not help them to minimize the impact of economic and

financial crises arising in different regions (Asia in 1997, Russia in 1998, Argentina in 2000, etc.) and sectors (commercial real estate in France during the mid-1990s, internet and telecommunications beginning in 2000). The response of banks to regulatory constraints – prudential as well as accounting (absence of dynamic provisioning) – probably aggravated the economic cycle. A lack of clear forecasts led to credit shifts that were all the greater because they were delayed.

Thus stability in regulatory capital requirements through the economic cycle has not necessarily translated into micro- and macro-economic stability in recent decades. This is one of the reasons why the new ratio has been designed to be more sensitive to the economic cycle.

2|2 Increases in capital

A second concern relates to the fact that the new ratio is liable to lead to *excessively large increases*⁴ in regulatory capital requirements.

Clearly, a risk-sensitive Accord will produce regulatory capital requirements that vary with fluctuations in credit quality: when credit quality deteriorates, capital requirements will increase. This is both healthy and desirable, for the reasons indicated above. Is there, however, a risk that swings in capital requirements will be so large as to be unacceptable, either globally or for certain sectors of the economy?

A number of studies have attempted to quantify the degree to which capital requirements will fluctuate over time under Basel II, using historic data on variability in the quality of credit portfolios.

Caution should be applied when interpreting such static comparative studies in the context of a structural change such as Basel II, which will profoundly modify the behaviour of banks in ways that are difficult to model in advance.

In the absence of internal bank data, the studies mentioned above have generally relied on data from external rating agencies or on "KMV"-type market data covering large, mostly American firms. Because of this methodological bias, the studies have reported higher historical volatility in regulatory capital than would be the case in France⁵.

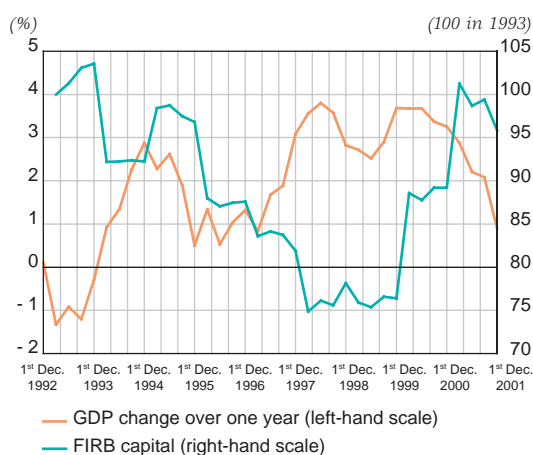
⁴ The possibility of sharp decreases in capital requirements seems to generate less concern, but they can be just as dangerous prudentially since they can lead to an oversupply of credit which can facilitate the development of financial bubbles.

⁵ See for example the estimates produced by the Federation of German Banks (www.bis.org/bcb/cp3).

For the French banking system, a simulation of the capital requirements generated by applying the internal ratings-based approach to the period 1992-2001 has shown a variation in regulatory capital requirements on the order of 25% from peak to trough of the economic cycle.

In diagram 2, below, IRB requirements are estimated using rating tools employed by the Bank of France and the Banking Commission⁶. These estimates, which cover a fairly large number of firms, are undoubtedly closer to reality than studies based only on ratings of credit rating agencies or on models that rely on market data.

Diagram 2
Ex-post simulation of evolution in capital requirements (FIRB) for industrial loan portfolios and the rate of growth in GDP



Sources: INSEE – data adjusted for seasonal and working day effects (GDP) – and Oung (2003)

Moreover, the overall calibration of Basel II, using data from the third Qualitative Impact Study (QIS3), will ensure that the overall level of regulatory capital for international banks in the G10 countries is maintained. Fears of a global increase in prudential requirements are therefore unfounded.

The March 2002 data used in the QIS3 represent only a snapshot of bank balance sheets at one moment in the credit cycle, and not their evolution over a complete cycle. For several major G10 countries (United States, Japan, Germany), this snapshot is being taken at a moment when commercial defaults are at a cyclical peak. The resulting calibration is accommodating for banks, since many banks' balance sheets are already at the bottom of the cycle.

Another reason to avoid attaching too much importance to this concern is the fact that all G10 banks have for many years maintained actual capital levels well in excess of regulatory minimums.

In French banks, the average amount of core ("Tier one") capital, which is the form of capital most closely watched by bank analysts and rating agencies, exceeds 8%: more than twice the regulatory minimum (4%). This margin represents a buffer which makes it easier for banks to deal with increases in regulatory requirements.

Banks generally prefer to hold more capital than the regulatory minimum in order to obtain a desired credit rating for the bank. The buffer can also result from calculations of the economic capital necessary to cover total unexpected losses. The measures taken by banks to cover all of their risks – including the step of holding additional capital – will be the subject of dialogue between the bank and its supervisor under Pillar 2. This is clearly a stabilizing element.

2|3 Sectoral effects

In addition to questions about procyclicality and the global level of prudential requirements, the possibility of shifts in the composition of the supply of bank credit has been raised as a third concern. Because Basel II aligns capital requirements more closely with actual risks, it could alter supply and pricing in certain sectors.

Businesses – particularly small and medium-sized enterprises (SMEs), which depend heavily on bank loans for financing – and emerging-market countries are sometimes cited as potential "losers" in the Basel reforms, while households are cited as "winners".

It is difficult at this stage to reach any general conclusions on this point, since prudential requirements will depend on the credit quality of each counterparty at the end of 2006, when Basel II takes effect. Nevertheless, the simulations that have been carried out to date for SMEs and emerging countries do not all support the hypothesis.

For SMEs, several prospective studies conducted in different European countries – Belgium (Masschelein, 2003), Spain (Saurina and Trucharte, 2003) and France (Dietsch, 2003) – point to a reduction in regulatory capital requirements and not an increase.

⁶ Banque de France ratings are assigned to more than 180,000 businesses (www.banque-france.fr/fr/info).

As to the impact of Basel II on emerging-market countries, some banking economists have (Griffith-Jones *et al.*, 2003) expressed their disappointment that the diversification benefits of lending to emerging-market are not taken into account. Demonstrating these benefits statistically has, however, proved difficult. Leaving aside the costs that banks can incur when they enter these markets, the 1997 Asian crisis and the contagion effects that accompanied it argue for caution in giving credit for the asserted benefits of diversification. For this reason, the Basel Committee chose not to provide a preferential treatment for loans to emerging-market countries.

This decision has generally been accepted by supervisors in the countries concerned. This is largely due to the establishment by the Basel Committee of a forum – the “CPLG”⁷ – dedicated to the principle that each country should be able to analyse its situation objectively and set a reasonable timetable for implementing Basel II. The Basel Committee has also proposed a “Simplified Standardized Approach” with several features designed specifically for emerging-market countries.

While the implementation of the Basel I (Cooke) ratio was spread over a long period of time, the consultative process put in place for the Basel II reforms should help to reinforce financial stability.

For loans to individuals, the Basel Committee analysed a large volume of data provided by banks in the course of four impact studies. These studies provided an empirical basis for calculations leading to the hierarchy of risks proposed in the third consultative document (CP3). In all of the Committee’s member countries, loans to households were found to be less risky than loans to businesses.

The suggestion that “retail banks will be given preferential treatment” is based on a comparison with the Basel I risk weighting for retail exposures, which was never really based on scientific analysis of the data. The data collected so far indicate that the capital charges imposed on the activities of retail banks are well in excess of their actual risk, and thus, that retail banks are currently penalized.

Is there a risk that removing this penalty will induce households in France and elsewhere to become over-indebted, with the social and economic risks that this entails?

One should note that the cost of capital is only one of the determinants of the cost of credit.

The largest component of the cost of credit is the cost of refinancing: *i.e.*, the cost of the resource that appears on the liability side of the bank’s balance sheet. The next largest component is the cost of the human resources and materials needed to raise the financing and extend the loan. The third component is the cost of risk covered by provisions. The fourth, and smallest in size, is the regulatory cost of capital.

Thus, while changes in the ratio have a clear impact on the risk-return tradeoff for customer transactions, and therefore on the relative attractiveness of business lines within the bank, the interest rates applied to retail banking transactions should not change dramatically simply as a result of Basel II.

2|4 The risk of uniformity in modeling techniques

A fourth concern involves the risk of *too much uniformity in the tools that banks use to manage credit risk*, due to all of them employing the same regulatory model. The holders of this hypothesis (Aglietta, 2003) fear that the homogenization of credit rating systems will not only reduce their efficacy, but above all promote herd behaviour, increasing financial instability (Persaud, 2003). If all banks base their strategies on the same historical observations, there is indeed a risk that fashion will play too great a role in setting strategies, leading to sudden changes in direction affecting the entire industry. However, banks base their strategies on more than just the analysis of historical data; their tools have a prospective dimension which varies widely from one bank to another.

The Basel II framework is derived from the banking industry’s best practices. The result is a regulatory model (Gordy, 2002b) that is easy for banks to apply to the calculation of regulatory requirements. The dangers of excessive uniformity should not be exaggerated, since the Basel Committee left banks considerable latitude in choosing the rating techniques best suited to their activities.

⁷ The “Core Principles Liaison Group” (CPLG) is a forum which brings together non-“G10” countries (Argentina, Australia, Brazil, Chile, China, the Czech Republic, Hong-Kong, India, Korea, Mexico, Russia, Saudi Arabia, Singapore, South Africa and West Africa); several “G10” countries, including France; and several international organizations.

Large commercial banks in France use a variety of techniques to assign ratings to large businesses, SMEs, professionals, and individuals.

In fact, a multitude of techniques are available: credit scoring, behavioural scoring, econometric modeling, expert systems, scoring ladders calibrated by iteration of the results, budget classes, and models replicating the scoring of credit agencies. Different banks choose different approaches depending on their culture, their organization, and their data. The role of external ratings (generated by credit rating agencies, the Banque de France, etc.) varies from “an explicit element used in calculating a score” to “a separate factor that is compared with the internal rating calculated by the bank” to “used in the overall fine-tuning of the bank’s rating methods”. The relative importance of qualitative versus quantitative factors varies between banks, even if some common patterns can be observed.

Thus, in rating large corporations, banks rely primarily on an analysis of financial variables, along with qualitative factors such as the quality of management – but the role of the analyst remains fundamental. For SMEs, banks rely more on rating scales and on systems which guide/constrain the rating official. For inter-bank and sovereign borrowers, the banks resort to models which replicate the ratings of credit rating agencies. Even for retail banks, the use of separate scoring models for each type of transaction is not the only approach used: some institutions, following the practice for rating commercial loans, assign a single rating which applies to all credits extended to a given customer.

Just as there is variation in the models used by banks, so the methods used to assign ratings – while respecting both the letter and the spirit of the Basel framework – are more diverse and therefore contribute more to stability than is commonly realized.

In continental Europe, universal banks tend to place the customer, rather than the type of transaction, at the center of the commercial relationship. Because banks know their customers well – particularly if they monitor the customer’s financial accounts – they generally adopt a medium-term view in making any necessary rating changes, which permits them to accompany their customers “through the cycle”.

Under Basel II, banks must associate one-year probabilities of default with their rating hierarchy, but the segmentation of the hierarchy is determined based on a long-term average (usually 5 years), with a conservative bias⁸.

In this system, deterioration in the credit quality of a customer does not imply any short-term change in the average probability of default associated with each rating grade. Rather, the customer migrates from one rating grade to another grade with a higher probability of default.

The characteristics of such a system (ratings calibrated on average default probabilities; subjective, ordinal ratings; and annual review of the ratings of all customers, spread over the course of the year) help to reduce volatility and avoid possible overreactions.

Studies carried out by the Banking Commission on counterparties common to several French banks indicate that while there is some convergence in rating methodologies, there are also significant differences, with some banks making greater use of the full range of ratings than others. This observation does not, at this stage, validate the hypothesis that banks are all using the same tools to manage risks.

The Basel Committee takes seriously the possibility of interactions between the Basel II proposals and financial stability. This has led it to propose a number of remedies.

⁸ See § 425 of the third consultative document (www.bis.org/bcbis).

3| Several features of the reform will contribute to financial stability

The desire to avoid potential procyclical effects has led to a variety of changes in the Basel II proposals at various stages in the process of calculating capital requirements.

3|1 Input data (internal rating assignments, probabilities of default and associated)

Economists are divided on the link between stability in internal rating assignments and macro-financial stability. Some economists argue on theoretical grounds (Catarineu *et al.*, 2003) that banks will not voluntarily choose a rating scheme that is designed to be more stable over the cycle, and that supervisors therefore need to impose stability in rating systems. Other economists contend that such a policy on the part of supervisors would undermine the tools that banks use to monitor their risks (Gordy, 2002a).

The Basel Committee, while not taking a position in this debate, has made allowance for different approaches, stating, for example, that the time horizon for estimating ratings – normally one year – can be set longer⁹. Furthermore, the Basel Committee endorses the use of different estimation methods for associating one-year default probabilities with rating grades, or loss given default rates to different facilities, providing they are based on long historical observation periods and are sufficiently conservative.

It does not appear desirable, from the point of view of financial stability, to place further constraints on banks' internal rating methods, since this would lead to divergence between the

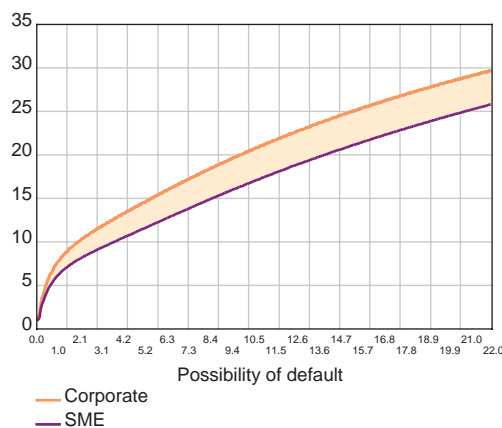
ratings banks use in calculating regulatory requirements and the ratings they use for internal management purposes.

3|2 The supervisory model for calculating regulatory requirements

The Basel Committee has reduced the effect that a deterioration in ratings has on capital requirements, relative to earlier consultative documents.

One example of this is the decision, as part of the calibration exercise, to flatten the risk-weight curve for corporate portfolios. The corporate portfolio has been split in two, using a threshold of EUR 50 million to distinguish SMEs from other businesses.

Diagram 3
Capital risk-weight curves for corporate exposures
(capital charges – %)



⁹ See § 376 of the third consultative document: "Although the time horizon used in PD estimation is one year (as described in paragraph 409), banks must use a longer time horizon in assigning ratings. A borrower rating must represent the bank's assessment of the borrower's ability and willingness to contractually perform despite adverse economic conditions or the occurrence of unexpected events."

Box 3**The treatment of French bank exposures to SMEs in Basel II**

Using the definition of SMEs that emerged from negotiations within the Basel Committee at the end of April 2003, the General Secretariat of the Banking Commission has been able to estimate how the Basel II treatment of the SME portfolio will affect the capital requirements of the major French banking groups and of the French banking system as a whole. Since banks can, subject to certain conditions, choose between three different methods for setting their capital requirements, three simulations were carried out.

To begin with, the small business portfolio of each banking group was divided into two components: very small business customers ("petite clientèle") with revenues less than or equal to EUR 1 million, and small to medium-sized enterprises ("petites et moyennes entreprises") with revenues between EUR 1 and 50 millions). The Basel II reforms envisage applying different risk-weight curves to each of these two categories of exposures.

The following table shows, for each Basel II approach and for each component of the small business portfolio, the average risk weight for the French banking system as a whole and for the major French banks. The risk weights were calculated on the basis of first-quarter 2002 data, and are expressed as percentages of the current "Cooke" ratio.

These simulations shows that, all other things being equal, Basel II will permit the French banking system to dedicate less capital to back-up loans to SMEs, whatever the choice of approach (Standardized, Foundation IRB, or Advanced IRB). Furthermore, the Foundation IRB approach results in slightly lower average capital charges than the Standardized Approach and the Advanced IRB approach results in a further slight reduction compared to the Foundation IRB Approach.

The prudential treatment envisaged in the Basel II reforms should therefore reduce regulatory capital requirements for credit risk on financing to small and medium-sized businesses, which continue to depend significantly on banks as a source of financing. It should be noted that it is necessary under Basel II to add capital requirements for operational risk and market risk, which are of the order of 15% of total capital charges.

Capital requirement for credit risk compared with Basel 1 (Basel 1 = 100)

	Standardized Approach	Foundation IRB Approach	Advanced IRB Approach
SMEs (EUR 1-50 millions)			
All banks	98.2	77.1	71.9
Major banks	98.7	77.1	74.0
"Petite clientèle" (< EUR 1 million)			
All banks	75.0		58.6 (a)
Major banks	75.0		60.3 (a)
Total (SME + petite clientèle)			
All banks	90.4	70.9	67.4
Major banks	90.7	71.4	70.0

(a) Only one internal ratings-based approach is available for exposures to "petite clientèle".

Sources: SGCB, QIS3 survey.

On the whole, loans to SMEs, by virtue of the large number of exposures, are less sensitive to the economic climate than other corporate loans. This empirical observation has been taken into account in the formula for calculating capital requirements by

varying the assumed correlation between assets as a function of the SME's probability of default¹⁰. The overall effect is to reduce the regulatory requirement for SMEs by approximately 10% relative to the requirement for larger businesses (see diagram 3).

¹⁰ See § 242 of the third consultative document for the formula.

3|3 Stress tests of regulatory capital in the context of Pillars 1 and 2

Market risk regulations require banks to calculate Value-at-Risk and to conduct stress tests for their major positions. The results must be provided to the banks' internal risk committees and to their supervisors. The same approach has been adopted for credit risk. The stress scenarios required under Pillar 2¹¹ are intended to gauge the sensitivity of capital measures to changes in the economic environment or events affecting market or liquidity conditions. These measures will help supervisors to evaluate how prudently banks conduct their analyses; and will enable supervisors, within the framework of Pillar 2¹², to assess the overall adequacy of banks' capital in relation to the totality of their actual and potential risks. The stress tests can serve as the basis for discussion with banks on the size of the capital "buffer" that they should maintain in excess of regulatory minimums in order to enable them to weather economic downturns. Some banking economists (Khallouf, 2003) go further, proposing that supplementary capital required under Pillar 2 could serve as an explicit countercyclical instrument, but the Basel Committee has not adopted this approach, which it judges too difficult to put in practice. Pillar 2 simply formalizes a practice which has been adopted spontaneously by a majority of banks and by the Banking Commission and its General Secretariat over the past several years.

3|4 Adjusting overall capital requirements through the cycle

Banking economists have also proposed that, without changing the methods used to calculate capital requirements, the result of the calculation should be adjusted downwards during periods of recession in order to improve access to credit and stimulate a rebound in economic activity (Ervin and Wilde, 2001). This approach has not been formalized by the Basel Committee because of the practical

difficulties involved in determining where different economies are in the cycle, and because different bank business lines have different degrees of sensitivity to the economic cycle. Under Pillar 2, each bank supervisor is to assess, during periods of recession, if the reduction in the amount of capital that a bank holds in excess of its regulatory requirements is consistent with its overall risk profile.

However, the Basel Committee has opened a dialogue with the IASB to find a way to translate the notion of prudential losses over a one-year time horizon into accounting terms. Current accounting rules permit provisioning only for realized losses, which leads to a concentration of provisions at the low point of the cycle and thus amplifies the financial cycle. To prevent recognition of losses on defaulted loans from having a major procyclical effect, banks must be able to anticipate, and to assign provisions for expected but not yet realized losses.

The initial declarations of the IASB in favor of provisioning on the basis of expected losses were met with reservations from American accounting standard-setters, who have no equivalent mechanism in their accounting framework; and also from some banks, which posed questions concerning the time horizon for provisioning, which is one year in Basel II and the full maturity of the exposure in the IASB proposals.

Without prejudging the decision of the IASB on this topic, the Banque de France and the Banking Commission hope that the dialogue between the Basel Committee and the IASB on proposed accounting standard IAS 39 will lead to a resolution of the differences between the accounting and prudential treatments of provisionable losses. The Banque de France and the Banking Commission expressed this hope in October 2002 in their reactions¹³ to the IASB's proposed standards IAS 39 et IAS 32, and it was reiterated on the occasion of the roundtables held by the IASB on IAS 39 in March 2003.

¹¹ See § 396 to 399 of the third consultative document.

¹² See § 724 of the third consultative document.

¹³ "Comments on the exposure draft of the proposed amendments to the revised IAS 39 and IAS 32" (October 2002) (www.banque-france.fr/gb/infobafi).

In conclusion, how banks evolve in the future will depend on how – with the guidance of their managers and supervisors – they adapt to the opportunity that is being offered to them to improve their strategic risk management.

It is expected that the new framework will, in the end, be less cyclical at the macro-economic level than the framework that preceded it, for the reasons outlined above. An examination of the internal rating methods used by French banks reveals that they have chosen voluntarily to seek relative stability in their ratings through the cycle. Thus the conflict between sensitivity to changes in market conditions and pricing based on risk is more apparent than real. The Basel II reforms, and in particular the internal ratings-based approaches, will encourage the wider use of “risk-return” tools. This will permit more accurate pricing of bank loans and will lead to a redistribution of bank credit that better reflects banks’ management policies and their commercial strategies. Armed with more risk-sensitive tools and a clearer vision of the future, banks should be in a better position to serve their customers through the entire economic cycle, creating durable value in each business line. Greater transparency in the profitability of each business line will require banks to assess the rate of return expected from customers in a medium-term perspective. Both in validating internal rating systems and in carrying out on-going supervision, banking authorities will seek to balance the pursuit of greater risk-sensitivity with the goal of financial stability.

Glossary

Internal Ratings-Based Approach (IRB)

An approach in which ratings assigned by the bank to its counterparties are used to calculate regulatory capital requirements. This approach has two variants. In the simplified version, referred to as the «foundation» or «FIRB» approach, the bank furnishes only the probability of default (PD) within a one-year time horizon for each of its exposures. In the more sophisticated version, referred to as the «advanced» or «AIRB» approach, the bank furnishes the other parameters used in the regulatory calculation as well: loss given default, exposure at default, and the maturity of the exposure.

Exposure at default (EAD)

This corresponds to the amount legally owed by the client in the event of default, calculated at a time horizon of one year. By convention, it is equal to the current drawn amount at the moment the ratio is calculated, plus a fraction of off-balance commitments calculated by applying a credit conversion factor. In the advanced IRB approach the bank estimates this fraction, while in the standardized and foundation IRB approaches it is specified by the supervisor.

Loss given default (LGD)

This corresponds to the economic loss sustained by the bank as the result of the default of its counterparty, after taking into account any guarantees. This loss is calculated separately for each advance to the defaulting counterparty.

Expected losses (EL)

This corresponds to the product $EAD \cdot PD \cdot LGD$ calculated using a time horizon of one year. Expected losses should ordinarily be covered by provisions or, if provisions are insufficient, by regulatory capital.

Unexpected losses (UL)

The probability distribution of losses within a one-year time horizon makes it possible to calculate a threshold level of losses at a confidence interval which Basel II sets at 99.9%. Unexpected losses correspond to this threshold amount, less expected losses. Unexpected losses should normally be covered with regulatory capital.

Maturity (M)

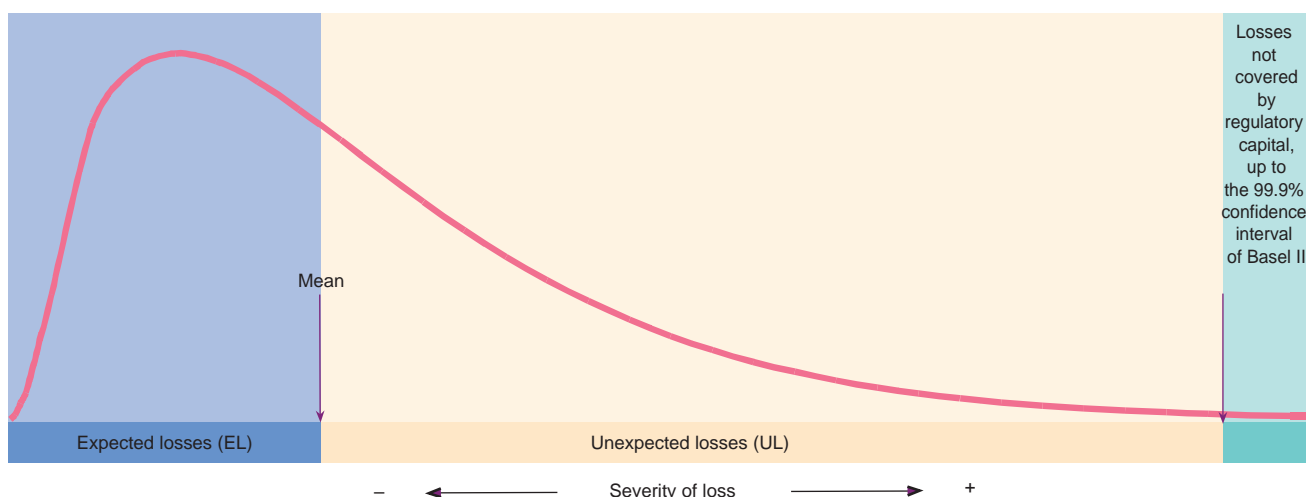
The remaining term to maturity for the facility in question. Maturity enters into the calculation implicitly in the Foundation IRB approach (it is fixed at 2.5 years), and explicitly in the Advanced IRB approach.

Economic capital

The amount of capital that a bank would allocate to a transaction or a portfolio so that, in the event of losses, the probability that these losses would be less than capital is consistent with the bank's internal or external (i.e. credit rating) objectives. For example, for a bank rated AA, economic capital should cover losses at a one-year horizon 99.97% of the time.

Diagram of the operation of the IRB approach

Probability density function for credit losses



Bibliography

- Aglietta (M.) (2003): "En encourageant l'usage des modèles VaR et la transparence de marché, les superviseurs vont exacerber les complémentarités stratégiques conduisant au risque systémique procyclique dans le risque systémique dans la finance libéralisée", *Revue d'économie Financière*, n° 70, January
- Bank of Spain (2003), *Financial Stability Review*, p. 125, May (www.bde.es/informes)
- Basel Committee on Banking Supervision (BCBS) (2000): "Range of Practice in Banks Internal Ratings Systems" (www.bis.org/publ), January
- Berger (A.) and Udell (G.) (2003): "The international memory hypothesis and the procyclicality of bank lending behaviour", BIS, *Working paper* n° 125, January (www.bis.org/publ)
- Catarineu (E.), Jackson (P.) and Tsomocos (D.) (2003): "Procyclicality and the New Basel Accord: Banks' choice of loan rating system", Bank of England, *Working paper* 181 (www.bankofengland.co.uk/workingpapers)
- Dietsch (M.) (2003): "Financing small businesses in France", *EIB papers*, vol. 8, n° 2 (www.eib.org/efs/eibpapers)
- Ervin (W.) and Wilde (T.) (2001): "Procyclicality in the New Basel Accord", *Risk Magazine*, October
- Gordy (M. B.) (2002a): "Procyclicality in Basel II: Can we cure the disease without killing the patient?", *Keynote address at Credit Risk summit in New York*, Bank of Spain (www.bde.es), October
- Gordy (M. B.) (2002b): "A risk-factor model foundation for ratings-based bank capital rules", Federal Reserve Board *Discussion series* (www.federalreserve.gov/pubs/feds/2002), November
- Griffith-Jones (S.) Spatt (S.) and Segoviano (M.) (2003): "Comments on Basel II and developing countries: diversification and portfolio effects", Basel Committee on Banking Supervision (BCBS) (www.bis.org/bcbs/qis), May
- Khallouf (J.) (2003): "Stabilité financière : l'impact contrasté de Bâle II et des normes IAS", *Banque Magazine*, July
- Masschelein (N.) (2003): "The Basel II Capital Accord, SME loans and implications for Belgium", *Financial Stability Review*, National Bank of Belgium (www.bnb.be), June
- Oung (V.) (2003): "Exigences de capital et cycle économique : une étude empirique sur les données françaises", *Bulletin* n° 28 of the Banking Commission, April
- Persaud (A.) (2002): "The political economy of Basle II", December (www.gresham.ac.uk)
- Persaud (A.) (2003): "The folly of value at risk: How modern risk management is creating financial risk" (<http://www.gresham.ac.uk/commerce/2002-2003>)
- Saurina (J.) and Trucharte (C.) (2003): "The impact of Basle II on lending to small and medium-sized", Bank of Spain (www.bde.es), June