



## D THE COMPREHENSIVE APPROACH OF BASEL II

### INTRODUCTION

On 26 June 2004, the central bank governors and the heads of banking supervisory authorities of the G10 countries endorsed the Revised Framework for Capital Measurement and Capital Standards, commonly known as Basel II or the New Accord.

Basel II is the culmination of a highly challenging project that was carried out by the Basel Committee on Banking Supervision (BCBS)<sup>1</sup> and its member agencies over a period lasting more than five years. Following the publication of the first round of proposals in June 1999, two additional consultative packages were circulated in 2001 and 2003 for comments, involving industry representatives, supervisory agencies, central banks and other observers in all member countries.

For many countries the next step will be the implementation of the Revised Framework by the end of 2006, according to the timetable developed by the BCBS. The deadline for the implementation of the most advanced approaches to risk measurement foreseen by the new framework is the end of 2007.<sup>2</sup>

This Special Feature provides an overview of the comprehensive approach of the New Accord, placing emphasis on the innovative elements of Basel II and relevant aspects from a financial stability perspective. It concludes with an assessment of the key remaining challenges for a successful implementation of the New Accord.

### THE INNOVATIVE ELEMENTS OF THE NEW ACCORD

#### FROM THE 1988 CAPITAL ACCORD TO BASEL II

Basel II builds on the first Capital Accord published by the BCBS in 1988, which set out the first internationally accepted definition

of bank capital and a credit risk measurement framework.

The regime established by the 1988 Capital Accord is based on a simple standard requirement, according to which internationally active banks in the G10 countries must hold capital to cover at least 8% of a basket of assets measured in different ways according to their riskiness. The categorisation of assets in this way leads to risk-weighted assets (RWA). This categorisation is applied to measure default risk, with assets being ranked in four risk weight buckets (0%, 20%, 50% and 100%) according to the debtor category. The 0% risk weighting applies essentially to bank holdings of government assets, while claims on banks have a 20% weight. Within each category, this approach does not distinguish between potential differences in the creditworthiness of each individual borrower.

Over time, however, the simple rule-based methodology of the 1988 Capital Accord became unable to address adequately the increasing complexity and associated risks of the evolving banking industry. Therefore, despite the significant contribution that the Capital Accord had made to the development of the single market in the EU and the high prudential standards that it had set, a revised framework was designed, allowing for a more accurate alignment of regulatory capital with the underlying risks that international banks face.

The New Accord is specifically designed to cope with the major shortcomings of the current regulatory regime. These include: i) crude estimates of credit risks; ii) scope for capital arbitrage; iii) lack of recognition of effective credit risk mitigation; iv) incompleteness

1 The BCBS was established at the BIS in 1974 and comprises central banks and other banking supervisory authorities from the G10 countries, Spain, Switzerland and Luxembourg. The Committee represents a standard-setting body on all aspects of banking supervision and provides a forum for regular cooperation.

2 The implementation of advanced approaches for credit and operational risks.

of the risks covered; v) absence of proper market disclosures; and vi) lack of flexibility in the regulatory framework. Furthermore, the supervisory functions are also not up to date. In this case, the current regime has two major shortfalls: the absence of requirements for supervisors to evaluate the actual risk profile of credit institutions, and the absence of requirements for supervisory cooperation in an increasingly cross-border market.

## BASEL II

The new capital adequacy framework is structured according to three fundamental pillars. Under Pillar I, the new framework sets out criteria for banking organisations to adopt more risk-sensitive minimum capital requirements. In particular, it lays out principles for banks to assess the adequacy of their capital. Under Pillar II, principles are designed for supervisors to review the assessment of capital adequacy and to ensure that banks have adequate capital to support their risks. Finally, under Pillar III, provisions are made to enhance market discipline by providing investors with all relevant information needed to assess the risk profile of a bank. Together, these three pillars represent a comprehensive approach to risk management and banking supervision.

## THE RISK-SENSITIVE REQUIREMENTS OF THE NEW ACCORD

Compliance with a more risk-sensitive capital ratio is identified as the first pillar of the New Accord, i.e. the minimum capital requirements. The new framework envisages substantial improvements in the calculation of the denominator of the capital ratio – the measurement of risk – whereas the definition of regulatory capital (the numerator of the capital ratio) as well as the minimum requirement of 8% of capital to risk-weighted assets remain unchanged. The new capital adequacy regime has been calibrated by the BCBS to keep the minimum capital requirements for G10 banks generally unchanged. Compared with the current regime, the new framework also widens

the scope of the capital ratio by including a “new” category of risk in the definition of risk-weighted assets - operational risk.<sup>3</sup>

$$\frac{\text{Total capital (unchanged)}}{\text{Credit + market + operational risks}} = \text{min. 8\%}$$

A major development in the new capital adequacy regime is the introduction of three increasingly sophisticated and risk-sensitive options regarding the computation of both credit risk and operational risk.

Concerning credit risk measurement, the standardised approach adopted by the new framework is conceptually the same as in the 1988 Capital Accord, but with a higher level of risk sensitivity.<sup>4</sup> Individual risk weights currently depend on the broad category of the borrower: sovereign, bank or corporate. According to the new framework, the risk weights are to be refined, taking into account an external credit rating provided by a recognised external credit assessment institution that meets strict standards.

- 3 Operational risk can be defined as the risk of a loss mainly resulting from inadequate internal control systems, or from extraordinary external events. The 1988 Capital Accord explicitly covers only two types of risks: credit risk and market risk. Other risks are presumed to be covered implicitly. The treatment of market risk arising from trading activities was subject to a 1996 amendment of the 1988 Capital Accord.
- 4 For instance, with regard to corporate lending, the 1988 Capital Accord provides only one risk weight category of 100%, whereas Basel II standardised approach provides five categories – 20%, 50%, 75% (for exposures qualified as retail portfolios), 100% and 150%.

**Table D.1 Risk measurement approaches**

Credit Risk	Market Risk(unchanged)	Operational Risk
Standardised Approach	Standardised Approach	Basic Indicator Approach
Foundation IRB Approach	Internal Models Approach	Standardised Approach
Advanced IRB Approach		Advanced Measurement Approach
Source: BCBS.		

The internal rating-based approach (IRB) for credit risk is one of the most innovative elements of the New Accord. In the “foundation” and “advanced” versions, the IRB approach allows banks to determine some of the key elements needed to calculate their own capital requirements. Hence, the risk weights – and thus the capital charges – are determined through the combination of quantitative inputs provided by banks or supervisory authorities and risk weight functions specified by the BCBS. These functions translate the banks’ input into specific capital requirements. More specifically, the IRB calculation relies on four quantitative inputs: i) probability of default (PD), which measures the likelihood that the borrower will default over a given time horizon; ii) loss given default (LGD), which measures the proportion of the exposure that will be lost if a default occurs; iii) exposure at default (EAD), which measures, for loan commitments, the amount of the facility that is likely to be drawn if a default occurs and iv) maturity (M), which measures the remaining economic maturity of the exposure. Given a value for each of these inputs, the IRB risk-weight function calculates a specific capital requirement for each exposure. The foundation and advanced IRB approaches differ, the latter including more inputs provided by banks on the basis of their own estimates as opposed to those that have been specified by the supervisor.<sup>5</sup>

As far as the computation of market risk is concerned, the new framework leaves unchanged the approaches foreseen in the 1988 Capital Accord. By contrast, the calculation of operational risk is another innovative area in which the BCBS has developed a new regulatory capital scheme, based on three different measurement approaches. Under the first approach (the basic indicator approach), the capital requirement of a bank to deal with operational risks should be equal to 15% of its annual average gross income over the previous three years. According to the second approach (the standardised approach), banks’ gross income is split among eight business lines and multiplied by specific supervisory factors determined by the BCBS, depending upon the

operational risk exposure of the individual business areas. The total operational risk capital requirement is the sum of the individual capital requirements of the eight business areas. The third and most sophisticated measurement approach is the Advanced Measurement Approach (AMA). This method requires banks to utilise, among other inputs, their internal loss data in the estimation of required capital. In the AMA, banks may use their own methods for assessing their exposure to operational risk, as long as they are sufficiently comprehensive and systematic.

Across EU Member States, the application of the full range of Basel II approaches is recognised. There are other elements that characterise the implementation of the new framework at the EU level (see Box D.1).

#### A COMPREHENSIVE CAPITAL REGULATION

An active role for supervisory authorities to ensure that banks have adequate capital to support all risks in their business and intervene whenever necessary is foreseen under Pillar II of the New Accord. The supervisory review process should support and encourage banks to develop and use the risk management function more effectively.

Pillar II of the New Accord provides supervisors with considerably more discretion than before in assessing banks’ capital adequacy. In this context, a consistent application of Pillar II across countries, in particular across EU Member States, is of the utmost importance for a prudent assessment of the overall risk profile of institutions and groups and in ensuring a

5 Under both the standardised and the IRB approach, the New Accord also introduces more risk-sensitive approaches to the treatment of so-called credit risk mitigation techniques (collateral, guarantees, credit derivatives and netting), as well as to securitisation. With regard to credit risk mitigants, banks opting for the standardised approach have a choice between two approaches, a simplistic and a comprehensive one, with the latter leading to a higher degree of capital alleviation. Capital treatment for securitisation exposures is determined on the basis of their economic nature as opposed to their legal form. Securitisation can be dealt with under the standardised approach or the IRB approach, in accordance with the underlying exposure securitised.

#### Box D.1. EU capital framework versus Basel II

Basel II will be integrated into the EU regulatory framework by means of two Directives. On 14 July 2004, the European Commission published its proposal for the amendment of the Consolidated Banking Directive (2000/12/EC) and the Capital Adequacy Directive (93/6/EEC) to revise the capital requirements for financial institutions.

The main elements which characterise the EU capital framework compared to Basel II are the following:

- Basel II applies on a consolidated basis to internationally active banks, whereas in the EU framework capital requirements will be applied, on a consolidated and individual basis, to all credit institutions and investment firms within the EU;
- the EU framework comprises the full range of approaches provided for in Basel II, whereas some non-EU G10 countries will only apply the advanced approaches;
- the EU framework is intended to enhance supervisory cooperation by enhancing the responsibilities of the authority responsible for consolidated supervision with a view to better coordinating supervisory action and to taking certain prudential decisions;
- under the EU framework, investment firms will be subject to capital requirements for operational risk, as is the case with banks;
- in the EU Member States, partial use of the IRB approach is expected to be made available, subject to supervisory approval, with a view to facilitating, mainly for smaller institutions, the use of the IRB approach.

level playing-field. Basel II identifies four key principles of the supervisory review, which complement those outlined in the extensive supervisory guidance developed by the BCBS, namely the Core Principle for Effective Banking Supervision and the Core Principle Methodology (see Box D.2).

#### FINANCIAL STABILITY IMPLICATIONS OF THE NEW ACCORD

The comprehensive approach adopted by the New Accord is expected to enhance banks' safety and soundness, strengthen the stability of the financial system as a whole, and improve the financial sector's ability to fund and foster sustainable growth for the broader economy.

The New Accord is expected to contribute to financial stability by controlling risks better

and by limiting the severity of macroeconomic and sectoral downturns. The first aspect will be fostered by bringing regulatory capital closer to the concept of economic capital, while the second aspect will be made possible by reducing credit disruptions.

From a financial stability perspective, two important elements can be emphasised in the new capital adequacy framework. The first relates to the internal structure and functioning of the New Accord, and the second relates to its external effectiveness.

For the Basel II framework to function effectively and to promote the safety and soundness of credit institutions, a smooth interaction between the three pillars will be needed. The degree of effectiveness of this interplay will vary from country to country,

#### Box D.2. Four key principles for the supervisory review process (Pillar II)

- Principle 1: Banks should have a process for assessing their overall capital adequacy in relation to their risk profile and a strategy for maintaining their capital levels;
- Principle 2: Supervisors should review and evaluate banks' internal capital adequacy assessment and strategies, as well as their ability to monitor and ensure their compliance with regulatory capital ratios. Supervisors should take appropriate supervisory action if they are not satisfied with the result of this process;
- Principle 3: Supervisors should expect banks to operate above the minimum regulatory capital ratios and should have the ability to require banks to hold capital in excess of the minimum;
- Principle 4: Supervisors should seek to intervene at an early stage to prevent capital from falling below the minimum levels required to support the risk characteristics of a particular bank, and they should require remedial action if capital is not maintained or restored.

depending on the extent to which the individual components of the framework and, in particular, the supervisory review process and market disclosure requirements are actually developed. Supervisory authorities follow different approaches in evaluating the risk profile of banks and in promoting disclosure. Therefore, it is important that some degree of convergence in the implementation of Pillars II and III will be pursued, notably in the EU countries. This objective is also relevant as the new regime empowers supervisors to assess banks' capital adequacy relative to their risk profile. In this context, it is crucial that cooperation among banking supervisors is fostered in order to promote a higher degree of supervisory convergence.

The role of the New Accord in effectively strengthening financial stability also depends on its successful implementation. In particular, stability will be enhanced by the increased alignment of capital requirements with the risks taken by individual banks. The new risk measurement approaches have the advantage of narrowing existing gaps between regulatory capital and risk-based economic capital, which may generate unwarranted distortions. In addition, the incentive to develop and/or improve a tailored risk management function within the individual banking organisations will

foster efficiency and stability within the system. In this context, the forward-looking elements of the New Accord will reduce the likelihood of the regulatory framework becoming outdated.

#### POTENTIAL PRO-CYCLICAL EFFECTS OF THE NEW ACCORD

Notwithstanding the beneficial effects of the new framework on financial stability, some issues are under discussion relating to the potential generation of pro-cyclical lending behaviour on the part of banks. However, the potential ability of the banking system to intensify economic fluctuations does not specifically arise from the framework of the New Accord.<sup>6</sup> All regimes with minimum capital requirements may generate pro-cyclical effects because the capital available to meet the requirements becomes scarcer in recessions, increasing the likelihood that banks will run into constraints on their lending.<sup>7</sup>

Under adverse circumstances, the New Accord could, however, have an effect on the dynamics

6 Pro-cyclicality arises if the capital (or provisions) accumulated during economic upturns are not adequate to cover the risks that materialise in downturns, and if banks are forced to recall loans to satisfy capital requirements.

7 A detailed discussion on this issue together with further references is provided by Allen, L. and A. Saunders (2004), "Incorporating Systemic Influences Into Risk Measurements: A Survey of the Literature". Forthcoming, Journal of Financial Services Research.

of a bank's minimum capital and lending practices in recessions. In contrast to the 1988 Capital Accord where, for a given amount of lending to a particular set of borrowers, the capital requirement was constant over time, Basel II identifies capital requirements which mostly depend on the current risk assessments of borrowers. As a consequence, risk weights can become cyclically sensitive and thus volatile, causing capital requirements to vary over the cycle.

Moreover, as already expressed by the ECB in its reply to the third consultative proposals (CP3)<sup>8</sup>, the pro-cyclicality effects of the New Accord might increase in an environment of deeper economic and financial integration, as this could make vulnerabilities and cyclical swings more synchronised. However, such pro-cyclical effects cannot be reduced at the cost of a major misalignment between regulatory and economic capital or of a loss of integrity and "signalling power" in internal risk management systems.

The pro-cyclicality aspects surrounding the New Accord have been mainly expressed in the context of the IRB approach where banks use their own estimates of probability of default. These estimates are based on borrowers' current conditions and are often oriented towards a short time horizon of one year (the so-called point-in-time estimates for PD).

According to a proposal by the European Commission (EC) (see Box D.1), the ECB will contribute to the periodic monitoring of whether the new Capital Adequacy Directive has had a significant effect on the economic cycle. In the light of this examination, the EC will consider whether any remedial measures are justified and will report to the European Parliament and to the Council.

Measures to address pro-cyclicality can vary in terms of scope and nature. Certain elements could be introduced to mitigate pro-cyclicality in the measurement of PDs. Drawing on past experience and using longer-term average PDs

could represent a theoretically simple, albeit backward-looking, solution. Furthermore, stress testing can be used to adjust PDs for the effects of different economic conditions. Indeed, this measure is actually proposed in Pillar II for this specific purpose.<sup>9</sup>

An additional measure aimed at alleviating pro-cyclical effects is the building up of additional capital buffers on top of the minimum capital requirements. This can provide banks with more flexibility in their lending behaviour, and allows them to avoid any forced cutback in lending in economic downturns. One way of building up such buffers is through the expanded use by banks and supervisors of proactive provisioning methods such as "dynamic provisioning". This way of financial provisioning would be desirable from a financial stability point of view since it is based on the assessment of expected losses, giving due consideration to the entire risk profile of the loan over the economic cycle.

Overall, the Basel II framework, as published in June 2004, has significantly reduced the extent of possible pro-cyclicality relative to earlier drafts such as CP 2 and CP 3. In particular, adjustments to the risk weights have had a considerable effect on the creation of cyclical capital volatility.

Advances in risk modelling technology can also create the prospect of an "early warning mechanism" with regard to any future deterioration in the loan portfolio. Hence, any deterioration in a bank's loan book should be detected more promptly than under Basel I. This may allow more timely responses by banks, including the recognition of accounting losses or the setting of additional provisions, thereby avoiding an abrupt change in the capital requirements. Furthermore, when minimum capital requirements become binding, there will be fewer incentives for banks under Basel

8 "The New Basel Capital Accord – Reply of the European Central Bank to the Third Consultative Proposals (CP3)", August 2003.

9 Stress tests are also foreseen by the new framework for the IRB banks to assess their capital adequacy.

II to radically reduce credit lines to good quality borrowers, because even a drastic adjustment may not raise the overall capital ratio significantly. In contrast, a restructuring process for troubled borrowers may be the preferred approach to avoid significantly higher capital charges, which could prove beneficial in supporting an economic recovery.

Overall, all these measures can be seen as considerably reducing the potential pro-cyclical effects of the New Accord.

#### REMAINING CHALLENGES

The adoption of the new capital adequacy framework represents a major success for the BCBS given the complexity of the issue, the increasing political involvement in the US and in the EU, and the substantial efforts needed to resolve contentious elements. However, notwithstanding the successful agreement reached on the Revised Framework, some issues may still warrant further attention:

- Prior to the implementation of Basel II, pressure for changes may stem from other technical studies or open technical issues.
- Efforts to achieve a consistent cross-border application of the new framework are critical, particularly in the EU. To this end, the work of the Accord Implementation Group, a specific substructure of the BCBS dealing with implementation issues, should be supported.
- Regular monitoring and analysis of the implications of the New Accord for the financial system and the economy as a whole is required. In addition to regularly monitoring potential pro-cyclical effects, it will be essential to analyse impacts on some specific sectors, such as the SME sector.
- Finally, there is a need to work in areas closely related to the New Accord, such as the definition of own funds, and to focus on regulatory and accounting requirements – especially in the light of the introduction of the International Accounting Standards.

#### CONCLUSION

The Revised Framework for Capital Measurement and Capital Standards is designed to provide a more comprehensive, sophisticated and risk-sensitive approach for banks to calculate regulatory capital. It will allow banks to align regulatory requirements more closely with their internal risk measurement. In addition, it will provide them with an opportunity to modernise and upgrade their risk practices, policies and technology. All of these innovative elements are expected to contribute positively to financial stability, and should contribute to the prevention of individual bank failures. The success of the proposed changes will however depend on how they are put into practice by bank managers and how supervisory authorities monitor and steer their effective implementation.