ARTICLES

THE NEW BASEL CAPITAL ACCORD: MAIN FEATURES AND IMPLICATIONS

In June 2004 the Basel Committee on Banking Supervision released a revised framework for the "International Convergence of Capital Measurement and Capital Standards", commonly known as the new Basel Capital Accord or "Basel II". This article describes the revised framework, reviews a number of possible effects of the regime and highlights the regime's application in the EU context. It starts by summarising the main details of the framework and continues with a discussion of the potential impact on banks, firms and Eurosystem activities. Particular attention is devoted to the potential for increased pro-cyclicality, given that this has been a major topic of debate. Finally, a number of key issues relating to the implementation of the revised framework within the EU are considered, with a particular focus on supervisory cooperation.

INTRODUCTION

On 26 June 2004 the central bank governors and heads of the banking supervisory authorities of the G10 countries endorsed the revised framework for the "International Convergence of Capital Measurement and Capital Standards", commonly known as the new Basel Capital Accord or "Basel II". This endorsement represents the culmination of a very challenging project that was carried out by the Basel Committee on Banking Supervision (BCBS)[1] and its member institutions over a period of more than five years. The first proposal was published in June 1999, and two subsequent consultative packages were released in 2001 and 2003.

The specific purpose of Basel II is to address the major shortcomings of the current framework for capital requirements. To this end, Basel II introduces more sophisticated approaches for calculating credit risk capital requirements, in line with current best practices among banks. Furthermore, the new framework aims to reduce the scope for "capital arbitrage"[2] and to make more accurate provision for the effect of risk mitigation measures. In addition, the revised framework introduces a capital charge for operational risk as well as comprehensive requirements for market disclosure. Finally, the scope for supervisory action is extended, as supervisors are expected to evaluate how well banks are assessing their capital needs relative to their risks, and to intervene if needed.

Basel II aims to safeguard banks' safety and soundness and to increase the stability of the financial system as a whole. In order to achieve this, the BCBS has provided the new capital adequacy framework with a structure that strengthens incentives for prudent bank management. It also envisages bank supervisors being directly involved in validating a bank's measurement of risk and in assigning a capital buffer. Finally, by introducing disclosure requirements, it creates an environment in which market participants have better access to information on risks in individual banking organisations and, on this basis, they can exert more effective market discipline.

This comprehensive approach responds to the need for better risk control by bringing regulatory capital closer to the concept of risk-based economic capital. The stability of the banking sector will therefore be enhanced by increased alignment of capital requirements with the risks taken by individual banks. Moreover, the incentive to develop or improve a tailored risk management function within the individual banking organisations will foster efficiency and stability within the system. The active role for supervisory authorities will encourage banks to further develop their risk management functions, while market participants will have sufficient information to adequately assess the risks, performance and overall capital adequacy of an institution.

1 The Basel Committee on Banking Supervision comprises central banks and supervisory authorities from the G10 countries, Spain and Luxembourg. The Committee constitutes a standard-setting body for all aspects of banking supervision and provides a forum for regular cooperation. The ECB participates as an observer.

2 Strategies that reduce a bank's regulatory capital requirements without a corresponding reduction in its risk exposure.

I THE STRUCTURE OF THE BASEL II FRAMEWORK

The Basel II framework has been developed on the basis of a three-pillar structure, namely minimum capital requirements (Pillar I), the supervisory review process (Pillar II) and market discipline (Pillar III).

The first pillar, minimum capital requirements, develops and expands on the rules introduced in the 1988 Capital Accord (Basel I). It provides for substantial improvements in the calculation of the denominator of a bank's capital ratio, referred to as the risk-weighted assets, in order to better reflect the risk profile of banks. The definition of regulatory capital (the numerator) remains basically unchanged. The general minimum capital requirement (at least 8% of risk-weighted assets) is also unaffected.

The main innovations in Pillar I are as follows:

i) The inclusion of operational risk as a new category of risk in the definition of risk-weighted assets. This is the risk of a loss resulting from inadequacies or failures on the part of internal processes, people or systems, or from external events;

ii) The introduction of three increasingly sophisticated and risk-sensitive options for the computation of credit risk (standardised approach, foundation internal ratings-based approach, advanced internal ratings-based approach) and operational risk (basic indicator approach, standardised approach and advanced measurement approach).

With regard to the measurement of credit risk, the standardised approach included under the new framework is conceptually the same as for the 1988 Capital Accord, but with a higher level of risk sensitivity.[3] Under Basel I, individual risk weights depend on which broad category the borrower falls into, i.e. sovereigns, banks or corporates. Under the new framework, the risk weights are further tailored using a credit rating provided by a recognised external credit assessment institution (ECAI) that meets supervisory eligibility standards.

The internal ratings-based approach (IRB) to credit risk is one of the most innovative elements of Basel II. In the "foundation" and "advanced" versions, the IRB approach allows banks to quantify certain key elements needed to calculate their capital requirements. Hence, the risk weights – and thus the capital charges – are determined through a combination of quantitative inputs provided either by banks or by supervisory authorities and risk weight functions specified by the BCBS (see Box 1).

In the case of operational risk, which is a new category of risk subject to capital requirements, a regulatory capital scheme based on three different methods is introduced. Under the first method (the basic indicator approach), a bank's capital requirement to cover operational risk would be equal to 15% of its average annual gross income over the previous three years. According to the second method (the standardised approach), a bank's gross income is divided into eight different business lines. The capital charge is calculated for each business line by multiplying the respective gross income by a factor – determined by the BCBS – assigned to that business line. The total operational risk capital requirement is then the sum of the individual capital requirements of these eight business areas. The third and most sophisticated calculation method consists of the advanced measurement approach (AMA). Under the AMA, the regulatory capital requirement is calculated on the basis of banks' internal operational risk measurement systems that have to take account not only of actual internal and external loss data but also of scenario analyses and factors relating to the banks' business environment and internal controls.

3 For instance, for corporate lending, the 1988 Capital Accord provided only one risk weight category of 100%, while Basel II provides five categories under the standardised approach, namely 20%, 50%, 75% (for exposures qualifying as retail portfolios), 100% and 150%.

As far as the computation of market risk is concerned, the approaches provided for by the 1996 amendment to the Capital Accord of 1988 are left basically unchanged by the new framework.

Under Pillar II, the supervisory review process, banks have to assess capital adequacy on the basis of their own internal risk management methodology, and supervisors will review whether a bank's capital is consistent with its overall risk profile and strategy. The supervisory review of capital adequacy will also cover the question of whether a bank should hold additional capital against risks not covered by Pillar I and may require supervisory action where this is the case. An active role for supervisory authorities will encourage banks to better develop and use their risk management functions. Pillar II provides supervisors with considerably more discretion than before in assessing banks' capital adequacy. In this context, a consistent application of supervisory practices across countries, in particular across EU Member States, is of the utmost importance in order to eliminate any undue compliance burden and ensure a level playing-field.

The aim of Pillar III is to improve market discipline by introducing disclosure requirements according to which banks will have to publish detailed qualitative and quantitative information concerning their risks, capital and risk management. These requirements cover not only the way in which a bank calculates its capital adequacy but also the techniques it uses in its risk assessment. The core set of disclosure recommendations includes specific and detailed provisions for supervisory recognition of internal methodologies for credit risk, credit risk mitigation techniques and asset securitisation.

For the Basel II framework to effectively promote the safety and soundness of credit institutions, smooth interaction between these three pillars will be needed. The effectiveness of this interplay will depend on the extent to which the three pillars – in particular the supervisory review process and market disclosure – are enforced in all of the countries concerned. The attainment of sufficient convergence in the implementation of these elements will be essential.

Box 1

THEORETICAL UNDERPINNING OF THE INTERNAL RATINGS-BASED APPROACH

The Basel II approach to credit risk measurement represents a significant step forward in banking regulation because it combines practical applicability with a solid theoretical basis. Given that the new methodology is suitable for implementation by banks of different sizes, business structures and risk profiles, a common approach to modelling credit risk across all types of bank is available for regulatory purposes for the first time. The internal ratings-based approach (IRB) is closely linked to key results of modern asset pricing theory. Its methodology is based on a model which establishes the likelihood of a borrowing company being unable to repay its debt, as determined by the difference between the value of its assets and the nominal value of its debt. The value of the firm's assets is modelled as a variable which changes over time, in part as a result of the impact of random shocks. Default is assumed to occur when a firm's assets are insufficient to cover its debt. The corresponding measure of credit risk within a certain time frame (commonly set at one year) is the probability of default.[1]

1 For more details on this theoretical model, see in particular M. Gordy, "A risk-factor model foundation for ratings-based bank capital rules", *Journal of Financial Intermediation,* Volume 12, 2003, pp. 199-232.

In the IRB approach, the required minimum capital is based on the distribution of losses due to default in a portfolio of loans or similar instruments. The horizon of the risk assessment is set at one year. The IRB model further assumes a 99.9% confidence level. This means that once in a thousand years the actual loss is expected to exceed the model's estimate. In addition, as a result of the agreement reached by the BCBS in January 2004, the IRB capital requirements cover only unexpected losses, i.e. losses which are not covered by provisions.

The calculation of capital requirements for a loan's default risk under Basel II relies on six components:

– *Probability of default (PD):* estimate of the likelihood of the borrower defaulting on its obligations within a given horizon, e.g. one year.

– *Loss given default (LGD):* loss on the loan following default on the part of the borrower, commonly expressed as a percentage of the debt's original nominal value.

– *Exposure at default (EAD):* nominal value of the borrower's debt.

– *Maturity* of the loan.

– *Correlation to systematic risk:* estimate of the link between the joint default of two separate borrowers. The IRB model relies on a single-factor asset value model to describe the co-movement of defaults in a portfolio. The unobservable common factor can be interpreted as a variable which represents the state of the economic cycle. IRB correlations to the single systematic risk factor are a function of the firm's size and credit quality in accordance with the BCBS framework.

– *Risk weight function:* function relating the loss forecast to minimum capital requirements; IRB risk weights are specified under the BCBS framework.

The main difference between the foundation and advanced IRB approaches lies in the definition of the input variables. Both approaches rely on banks' PD estimates, but banks' internal estimates of LGD, EAD and loan maturity are only taken account of in the advanced IRB approach.

The Basel II framework recognises the importance of asset type in explaining the risk profile of instruments subject to default risk and therefore distinguishes between corporate loans, commercial real estate financing and the retail portfolio. The model assumes very low concentration in the loan portfolio and that an individual borrower's default risk does not depend on the composition of the entire portfolio. This characteristic of the IRB considerably reduces the complexity of the approach and also allows smaller, less sophisticated banks to apply a modern risk management concept.

2 POTENTIAL IMPACT OF BASEL II

IMPACT ON BANKS

The new capital adequacy regime has been calibrated by the BCBS in order to keep the overall minimum capital requirements for the banking system unchanged on average. However, among banks there may be a redistribution of capital according to actual risk profiles and business activities.

The BCBS has studied the potential impact of the Basel II framework by means of several quantitative impact studies (QISs) carried out prior to the finalisation of the framework. Overall, the results of the last QIS (QIS3)[4] were consistent with the objectives set by the BCBS. They showed that minimum capital requirements would remain broadly unchanged for large banks operating internationally, given that such banks are likely to use the IRB approaches. For smaller, domestically-oriented banks, capital requirements could be substantially lower under the IRB approaches. However, the results varied considerably depending on banks' portfolio composition. Thus, the impact of the new capital requirements may vary significantly across banks.

The potential impact of the Basel II framework in the EU was analysed in the "Barcelona Report".[5] This report was produced in response to the European Council's request, made at its meeting in Barcelona in March 2002, to the European Commission for a report on the consequences of Basel II for all sectors of the European economy. The report, published in 2004, analysed the macroeconomic consequences of the revised framework. It concluded that the Basel II framework may slightly reduce the overall capital requirements for banks in the EU15 by around 5%. Moreover, there is likely to be a redistribution of regulatory capital requirements among banks and between banking systems across countries.

A number of countries, both G10 and non-G10, are currently undertaking a further quantitative impact study, which is the fourth exercise of this kind. A number of others intend to carry out QISs with a specific focus. The results of these analyses are expected to be available in the course of 2005 and may lead the BCBS to fine-tune some of the framework's technical parameters.

IMPACT ON FIRMS

In the discussion on the impact of the new framework, a number of commentators have focused on the potentially negative effects that the new capital requirements might have on the financing of small and medium-sized enterprises (SMEs). In particular, concerns have been expressed that quantitative rating methods such as the IRB approach might put more emphasis on financial ratios than on qualitative factors such as an entrepreneur's ability or business plans. This shift in the evaluation of credit quality might lead to higher risk assessments and in turn raise the financing costs of SMEs. In addition, start-up companies might be disadvantaged, as they generally lack a rating history. Higher credit costs or a decrease in the supply of credit might lead to a deterioration in SMEs' financial situation. Since SMEs are an important component of the EU economy, these developments – if they were to materialise – might potentially have adverse effects on economic growth, innovation and employment. However, the final shape of the Basel II framework should dispel these concerns, as SMEs are in general expected to obtain rather more favourable treatment than under the current regime.

IMPACT ON SOME OF THE EUROSYSTEM'S ACTIVITIES

The use of the standardised and IRB approaches for credit risk is expected to shape the risk management practices of Eurosystem

4 More details are provided in "Quantitative Impact Study 3: Overview of global results", BCBS, 2003.

5 "Study on the financial and macroeconomic consequences of the draft proposed new capital requirements for banks and investment firms in the EU", PriceWaterhouseCoopers Risk Management, 2004.

counterparties and influence the availability of external credit ratings. This in turn will have a major impact on the assessment of whether collateral is eligible for Eurosystem credit operations.

In order for marketable debt instruments to be included in the "tier one" list of collateral[6] accepted by the Eurosystem, they must meet high credit standards. These are assessed by taking into account, inter alia, available assessments by rating agencies. The eligibility criteria of ECAIs and the process of recognising such ECAIs for prudential supervision purposes at the national level will influence the quality of the ratings and the level playing-field in the market for ratings.

In August 2004 the Governing Council of the ECB approved in principle the inclusion of bank loans from all euro area countries in the single list of collateral[7]. However, making such assets generally eligible requires the adoption of specific solutions to provide a credit risk assessment where a rating is not available. One of the alternatives under examination is to consider a counterparty's IRB approach when assessing the credit quality of assets provided by that counterparty as collateral.

3 REGULATORY CAPITAL REQUIREMENTS AND PRO-CYCLICALITY

When the new framework was being developed, concerns were voiced that the new requirements would lead to increased pro-cyclicality in the financial system; the ECB too has repeatedly commented on this important policy issue.[8] Pro-cyclicality refers here to the phenomenon of banks' loan business tending 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 contraction in an economic downturn. In general, banks' activities show pro-cyclical characteristics, regardless of the rules for capital requirements. This pro-cyclicality arises, for instance, on account of the existence of asymmetric information or market imperfections. In the context of Basel II, the discussion focuses, in particular, on the potential creation of additional pro-cyclicality in the financial system.[9]

The Basel II framework may potentially give rise to pro-cyclical effects on account of the fact that the three main components of the IRB system are themselves – albeit to different degrees – influenced by cyclical movements (see Box 1 for a summary of the IRB approach). First, a downturn may lead to an increase in banks' estimates of borrowers' default probabilities if banks use a short-term assessment horizon. Such a "point-in-time" rating changes as a result of variation in the credit quality over the course of the business cycle. By contrast, a "through-the-cycle" rating process requires a longer-term analysis of borrowers' default risk on the basis of a scenario which takes into account the effect of, for example, an economic slowdown. Second, the losses that occur in the event of a default may increase in an economic downturn, as it has historically been observed that recoveries from defaulted debt are lower in a recessionary environment. Third, the exposure at default of a loan may also increase, as borrowers might, during a downturn, make full use of their credit lines.

6 The "tier one" list of collateral contains marketable assets that fulfill certain uniform euro area-wide eligibility criteria specified by the ECB.

7 By replacing the current two-tier system of collateral with a single list, the Eurosystem intends to harmonise the collateral framework.

8 See, in particular, the ECB's comments on the BCBS' second and third consultation papers and on the European Commission's third consultative proposals on the review of the EU capital adequacy regime for banks and investment firms. In the new EU capital requirements framework (recast Directives 2000/12/EC and 93/6/EEC) it is envisaged that the ECB will contribute to the periodic monitoring of the directives' possible effects on the economic cycle (Article 156 of recast Directive 2000/12/EC). The European Commission will then report to the European Parliament and the European Council.

9 A detailed survey of the discussion on this issue is provided by L. Allen and A. Saunders, "Incorporating Systemic Influences Into Risk Measurements: A Survey of the Literature", *Journal of Financial Services Research,* 2004.

The aforementioned arguments indicate that in an economic downturn the higher risk sensitivity of banks' rating systems may lead to increases in regulatory capital requirements. In the event of a significant slowdown, banks' capital ratios may even fall close to the 8% minimum level. If they cannot easily adjust their capital level, the ensuing pressure may lead them to reduce lending to a level even below that warranted by the lower demand in a recessionary environment. This could then exacerbate the downturn.

In order to address pro-cyclicality concerns, the Basel II framework includes a number of specific measures which constitute a substantial improvement on earlier proposals. First, the BCBS decided to flatten the risk weight function used under Pillar I to compute minimum capital requirements. This led to a reduction in the risk sensitivity of the capital requirements.

Second, banks are asked, under Pillar II, to evaluate their risk-bearing capacity with respect to scenarios which would particularly affect their credit exposures. In addition, banks using the IRB approach are required to implement a more specific credit risk "stress test" to evaluate how certain events would affect their capital requirements. For this purpose, the banks' analysis should take into consideration the impact of at least mild economic downturns. In general, work is still ongoing on the development of reliable and practical methodologies for credit risk stress tests under the IRB approach. It therefore seems advisable that both banks and supervisors should devote further efforts to developing suitable methodologies.

Given the potentially cyclical behaviour of minimum capital requirements, banks could pre-emptively set aside sufficient capital in the form of buffers over and above the regulatory minimum. Such buffers, which are encouraged under the Basel II framework, can diminish the potentially negative macroeconomic effects of a downturn. In some countries, the practice of "dynamic provisioning" is encouraged. Under this approach, the possible loss over the whole life of the loan is taken into account in the provisioning process, thereby giving due consideration to the loan's full risk profile over the business cycle. Finally, under the IRB approach, banks should, in their assessment of borrowers' credit risks, draw on a longer time horizon. This is particularly relevant in the case of banks which lend to firms in cyclically sensitive sectors, and which should, in periods of upturn, be more conservative in their assessment of the default risk.

Concerns relating to pro-cyclicality were extensively addressed when the new framework was being developed, and, compared with earlier drafts of the new framework, the scope for such effects has been substantially reduced. Box 2 provides empirical evidence of the weak pro-cyclicality of the "final package" of the Basel II framework. The potential tools to reduce the creation of additional pro-cyclicality in the financial system, such as forward-looking credit risk assessments, stress tests and dynamic provisioning, should be seen as complementary measures.

Box 2

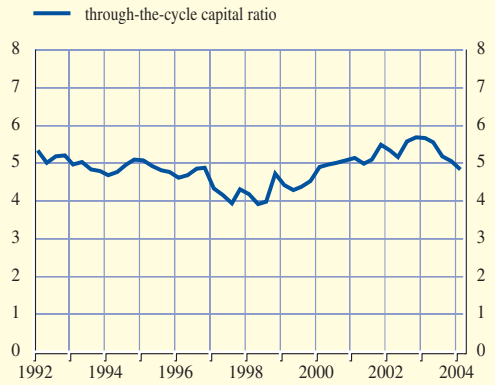
EMPIRICAL EVIDENCE ON PRO-CYCLICALITY IN AN EU CONTEXT

An empirical study was carried out by the ECB on the extent of capital volatility arising from the capital requirements under the IRB approach. To that end, the Moody's KMV approach, an established indicator of credit risk, was used to calculate IRB capital requirements. A hypothetical portfolio of loans to 6,000 large, non-financial EU firms was constructed. The sample of loans was diversified across the EU15, reflecting the increasing integration of the EU banking system, the growth of cross-border banking and the planned harmonised implementation of Basel II across the EU. The study covered the period from 1992 to 2004 and therefore included several turbulent phases, such as 1998 (LTCM default) and the period following March 2000 (when the technology bubble burst).

In order to obtain the foundation IRB capital requirements, the Moody's KMV credit risk indicator was transformed into a rating system which used ten rating grades and a cyclically neutral perspective. In this sense, the empirical analysis aimed to replicate, as closely as possible, the implementation of a foundation IRB approach using a "through-the-cycle" perspective.

Foundation IRB capital requirements for the hypothetical portfolio

(in %)



Sources: Moody's KMV, ECB calculations.

The chart summarises the main results of the empirical analysis. Two main points emerge. First, banks' regulatory capital requirements under the IRB approach remain below 8% for the hypothetical EU15 corporate portfolio. The median capital requirement is 4.9% and the standard deviation is 0.4%. In this context, it is important to bear in mind that the estimated decline in regulatory minimum capital requirements compared with Basel I does not automatically mean a decline in the overall capital held by banks to cover the risks. Second, the final version of the Basel II framework will reduce pro-cyclicality concerns if the IRB is implemented as envisaged. As the chart indicates, the "through-the-cycle" approach produces relatively low capital volatility overall.

4 THE NEW EU CAPITAL REQUIREMENTS FRAMEWORK

The Basel II framework is the basis for the legislative changes currently under way in the EU. The existing EU capital framework, based on the 1988 Capital Accord, was in need of a global review with the aim of making it more risk-sensitive and bringing it into line with up-to-date, sophisticated risk management practices, thus ultimately enhancing financial stability in the EU.

The new EU capital framework will be introduced into EU legislation via a recasting of two existing directives: the Codified Banking Directive (2000/12/EC) and the Capital Adequacy Directive (93/6/EEC). In

this context, it should be noted that the ECB regards this new legislative structure as a first step in a longer-term process, the ultimate objective of which would be to merge similar requirements from a range of different directives under a common framework – a backbone of banking regulation – that would enhance financial integration and make an effective contribution to the further development of the Single Market.[10]

A robust capital adequacy framework is essential for the EU. However, the full benefits for financial integration will only be reaped if such a framework is implemented and enforced consistently among Member States. This has already been acknowledged in the context of the initiatives implementing the Lamfalussy approach[11], in particular in respect of activities in the EU framework for financial supervision which aims to address the supervisory challenges stemming from increasingly integrated financial markets. In that context, regulatory convergence needs to be complemented by supervisory convergence.

Although based on Basel II, the revised EU capital adequacy framework incorporates certain differences reflecting specific features of the European economy. First, by contrast with the Basel II framework, which is aimed at banks operating internationally, the EU framework will, in principle, be applied on a consolidated and individual basis to all credit institutions, as well as investment firms, irrespective of their level of complexity or sophistication. This grouping of institutions with differing levels of complexity has led to the development of rules on the partial use of the more sophisticated approaches. Hence, less complex institutions can now apply more sophisticated approaches to one part of their credit risk portfolio and simpler approaches to the remaining parts of the portfolio.

Second, the EU framework also aims to ensure that prudential standards are appropriate to the risks incurred. In this context, for certain investment firms the existing simpler approach of setting a lower limit for the calculation of capital requirements (the "expenditure-based capital charge") can continue to be applied, instead of the new specific operational risk requirement.

Third, in its aim of supporting the overarching objective of enhancing financial integration, the EU framework provides for improved cooperation and coordination among supervisory authorities by enhancing the role of the authority responsible for consolidated supervision. The "consolidating supervisor" is generally the national supervisory authority of the Member State in which the parent institution of a cross-border group of companies is authorised. The consolidating supervisor is responsible for the highest level of supervision of an EU cross-border group. This role will now include coordinating and approving the use of the more sophisticated approaches for calculating capital requirements in relation to an EU cross-border group. The outcome of the application to use such approaches should be determined jointly by the supervisory authorities concerned, but if they fail to reach a decision within a certain period of time, it will fall to the consolidating supervisor to determine whether or not an application is to be approved.

This provision is seen as promoting a level playing-field for European financial institutions in the international market, for example by maintaining the competitive position of a pan-European group applying for approval of its internal risk models vis-à-vis its US counterpart (which need only submit one

10 See the ECB's comments on the European Commission's third consultative document on regulatory capital, November 2003.

11 Procedures for the adoption of what is known in the Lamfalussy framework as "Level 2 legislation", as proposed by the Committee of Wise Men on the Regulation of European Securities Markets. According to this concept, the Commission must submit draft measures implementing technical details of "Level 1 legislation" (framework principles adopted in directives or regulations) to a regulatory committee. For more details, see the article entitled "Developments in the EU framework for financial regulation, supervision and stability" in the November 2004 issue of the ECB's Monthly Bulletin.

such application). It should be noted that an enhanced role for the consolidating supervisor is very much supported by some of the larger cross-border institutions, which would like to limit the supervisory burden and avoid multiple requests from national supervisors.

Finally, the EU capital framework also requires enhanced supervisory disclosure. Supervisors are obliged to publicly disclose information concerning the implementation of rules, the exercise of matters of national discretion and the methodologies adopted in reviewing and evaluating the soundness of the institutions that they oversee. These provisions aim to foster increased transparency and ensure a level playing-field across the EU.