

New capital requirements for credit institutions (Basel II)

Basel II is the most significant change in prudential supervisory legislation since the late 1980s. On 26 June 2004, the central bank governors of the Group of Ten (G10) and the heads of the supervisory authorities in these countries endorsed the publication of the "International Convergence of Capital Measurement and Capital Standards: a Revised Framework (Basel II)". After more than five years of discussions, this marks a significant milestone in the international harmonisation of prudential supervisory legislation.

The key objective of the new Framework is to adjust banks' capital requirements more closely to the actually incurred risk than in the past and to take account of recent innovations in the financial markets as well as in institutions' risk management strategies. Additional focal points of the new Framework are basic principles for qualitative banking supervision and the expansion of disclosure requirements in order to enhance market discipline.

In parallel to the work by the Basel Committee, on 14 July 2004 the European Commission presented proposals for Directives to transpose the Basel proposals into European law; the deliberations in the Ecofin Council and the European Parliament are to be completed by the end of this year, if possible.

Objectives of the revised capital rules

Basel I needed revision

The international capital rules for banks, the Basel Capital Accord of 1988 (Basel I), were already criticised in the mid-1990s. The key reason for this was the supervisory guideline that capital requirements be calculated for credit risk in a relatively undifferentiated manner, which often only insufficiently portrayed the actual risk. In addition, this regulatory framework virtually neglected more innovative financial instruments and credit risk management methods. Furthermore, the orientation of the capital requirements solely to credit and market risks does not correspond to a bank's actual risk profile.

Range of eligible risk measurement procedures

Basel II is intended to remedy these flaws as much as possible. Supervisors' risk measurement practices will converge more closely to banks' risk management methods. The range and the level of development of the applied risk measurement procedures vary widely from bank to bank, however. Basel II addresses this phenomenon through an evolutionary concept of approaches of varying degrees of refinement: for the three key risk areas – credit risk, market risk and operational risk – credit institutions will, in future, be able to choose between standardised measurement concepts and more refined internal procedures and models. The more refined risk measurement procedures will lead to capital relief.

Enhancing qualitative banking supervision and market transparency

Moreover, supervisors' experience has shown that capital requirements – despite their usefulness as a buffer for losses and as risk limitation standards – are in themselves not

enough to guarantee the solvency of a bank. The Basel Committee has therefore added intensified qualitative banking supervision to the minimum capital requirements (Pillar 2). For Germany this will mean, among other things, an extension of "on-site" audits, which will be conducted mainly by the Bundesbank. The decisive factor is to identify and adequately supervise the overall risk to an institution and the key factors influencing its risk situation. In addition, banks are to be subject to more comprehensive disclosure requirements so as to make use of the disciplining forces of the markets as a complement to the regulatory requirements (Pillar 3).

Pillar 1: Minimum capital requirements

The quantitative capital requirements, which are the product of procedures of varying complexity for measuring the relevant risks, are at the heart of the new Basel Framework.

Standardised Approach for credit risk

In the Standardised Approach for measuring credit risks, the risk weights applied to claims on sovereigns, banks and corporates (including insurance companies) depend on the assessments made by external credit assessment institutions recognised by supervisors.¹ Depending on the external risk score, rated claims are given a risk weight of 0%, 20%,

Standardised Approach

¹ The national supervisors decide whether assessments prepared by an external rating agency are eligible for deriving risk weights using the Standardised Approach.

50%, 100% or 150%. Unrated claims are given a 100% risk weight.²

Claims on banks

In the case of claims on banks, the approach of determining the risk weight depending on the banks' external rating is set out under "option 2". An alternative, however, is also to derive the risk weight for a bank from the external rating of the sovereign of the country in which the bank is incorporated (option 1). In this case, claims on banks are generally risk-weighted one category less favourable than claims on the sovereign. This option is particularly attractive for small and medium-sized banks, as their low rating coverage could otherwise have a negative impact on their refinancing opportunities. As in the past, banks domiciled in Germany are assigned a 20% risk weight.

Claims on corporates

For claims on corporates, too, the new Framework will not bring any major changes with regard to the capital requirement relative to current treatment, because unrated claims will still be given a 100% risk weighting. At present, fewer than 100 corporates in Germany have had an assessment published by a rating agency.

Regulatory retail portfolio

An innovative development is the "regulatory retail portfolio", which includes not only claims on individuals but also exposures to small businesses. Additional classification criteria include the type of exposure (eg revolving credits, personal term loans etc) and the amount of the aggregate retail exposure to a single borrower of up to €1 million. The uniform risk weight in this category is 75%; this represents a significant reduction in the cap-

Risk weights in the Standardised Approach

Rating 1	Sovereigns	Banks		Non-banks
		Option 1	Option 2	
		AAA to AA-	0	
A+ to A-	20	50	50	50
BBB+ to BBB-	50	100	50	100
BB+ to BB-	100	100	100	100
B+ to B-	100	100	100	150
Below B-	150	150	150	150
Unrated	100	100	50	100

¹ For example, Standard & Poor's.

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ital requirement for retail exposures. In all likelihood, a considerable percentage of all German entities' borrowing can be assigned to the regulatory retail portfolio.

The risk weight for claims secured by liens on property occupied or rented by the borrower was reduced from 50% to 35%. For claims secured by commercial real estate, a risk weight of 50% is possible if certain additional qualitative requirements are met. The EC Directive defines the classification criteria for these categories of claims somewhat more broadly than the Basel Framework.

Claims with a bad external rating are given an increased risk weighting of 150%. A

Claims secured by liens

150% risk weight

² Option 2 for claims on banks, in which the risk weight applied to unrated claims is 50%, is an exception.

150% risk weight is also applied to the unsecured and unprovisioned part of loans that are past due for more than 90 days. National supervisors may reduce the risk weight as follows if the specific provisions exceed a certain percentage of the outstanding amount of the loan: to 100% if the specific provisions are higher than 20% of the outstanding amount of the loan and to 50% if the specific provisions are higher than 50% of the outstanding amount of the loan.

Internal Ratings-Based (IRB) Approach to measuring credit risk

Use of internal methods for calculating regulatory capital requirements

Basel II will give credit institutions the option of using internal methods to calculate regulatory capital requirements for credit risk for the first time. However, internal credit risk models that take account of portfolio diversification and correlation effects will not yet be approved by supervisors. Rather, the minimum capital requirement will generally be calculated on the basis of individual exposures and will, in future, result from supervisory risk weight functions. Depending on the approach used (Foundation IRB Approach or Advanced IRB Approach), the inputs will be either partly prescribed by supervisors or estimated wholly by banks.

Voluntary use of IRB Approach

Credit institutions need supervisory approval to be able to calculate regulatory capital requirements using their own rating systems; this approval can be granted by supervisors upon application by the institution and based on an on-site audit. It is up to the institution to decide whether or not to use internal ratings. Following an initial survey in the sum-

mer of 2003, the German supervisory authorities assume that up to 800 institutions will apply for permission to use the IRB Approach. An additional survey in the autumn of 2004 will provide more definite figures.

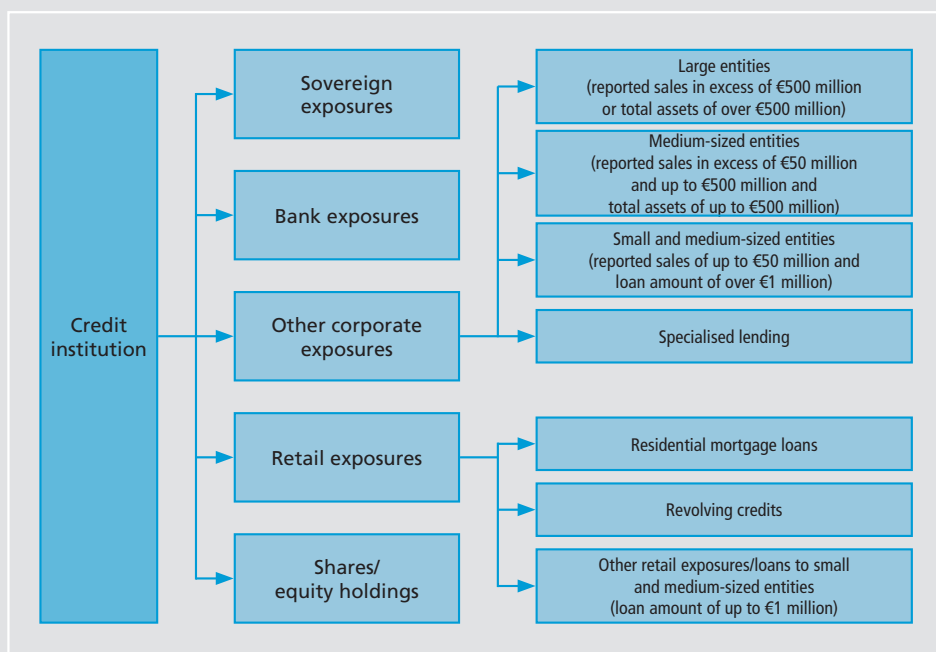
As in the Standardised Approach for calculating the capital requirement for credit risk, the IRB Approach also defines different asset classes for regulatory purposes. The chart on page 77 shows how credit risk assets are subdivided into asset classes.

Asset classes in the IRB Approach

Corporate and retail exposures are subdivided into four and three sub-classes respectively, to which different risk weights are applied. The methods of defining retail exposures according to Basel and the EU differ in the details, however. The Basel Framework directly defines three sub-classes of retail exposures. By contrast, the EC Directive initially defines the retail exposure class as all exposures to individual persons and to small and medium-sized entities up to a (total) amount of €1 million, which are similar to retail exposures for risk management purposes. The three sub-classes are defined only in the second step.

- Residential mortgage loans comprise all retail exposures secured on property by means of a mortgage or land charge.
- Revolving credits are all revolving, unsecured exposures to individuals that are uncommitted and unconditionally cancellable involving a loan amount of under €100,000.

Asset classes in the Internal Ratings-Based Approach



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- Other retail exposures include all other loans to individual persons and loans to entities in the retail category and not secured by land charges or mortgages.

Owing to the two-tiered definition of asset classes within the retail portfolio, there are slight differences between the Basel and Brussels rules. For example, the Basel rules classify loans to small entities secured by land charges on commercial real estate as “other retail exposures” since the Basel definition of residential mortgage loans refers only to loans for residential real estate. In the Brussels context, by contrast, the sample loan mentioned above would be classified as a residential mortgage loan. As things now stand, the resulting differences in capital requirements would appear to be slight. The EC Directive’s

definitional criteria will therefore probably be the sole basis for transposing Basel II into national law.

The capital requirement in the IRB Approach is determined – apart from a constant factor of 8% – as the product of exposure at default (EAD) and the result of the risk weight function, which hinges on the following risk parameters: probability of default (PD), loss given default (LGD) and effective maturity (M). Within the IRB Approach, credit institutions may choose between two stages which differ in terms of the parameters to be estimated internally and the minimum requirements.

In the Foundation IRB Approach, only the PDs per rating category are estimated internally

*Foundation IRB
Approach and
Advanced IRB
Approach*

for borrowers. LGD and EAD are determined by supervisors and depend on the type of product and on the collateral posted. The weighting of collateral in the Foundation IRB Approach largely follows the rules of the Standardised Approach. The maturity of exposures to corporates, banks and sovereigns is generally set at 2.5 years. At national discretion, however, the inclusion of effective maturity may also be laid down.

In the Advanced IRB Approach, however, credit institutions estimate all four risk parameters (PD, LGD, EAD and M) themselves. The risk weight for exposures to corporates, banks and sovereigns generally depends on effective maturity. At national discretion, a uniform maturity of 2.5 years can be assigned to exposures to corporates with annual reported sales and total assets of up to €500 million.

The evolutionary structure of the Basel capital requirements evident in the two-stage make-up gives credit institutions the opportunity of gradually refining their risk measurement systems towards the more advanced approaches. Smaller institutions, for which own estimates of LGD and EAD would be overly ambitious from a cost-benefit point of view, can use the Foundation IRB Approach on a permanent basis. The results of the summer 2003 survey also show just how important the role of the Foundation IRB Approach is: of the 800 candidates that are likely to use the IRB Approach, only around 30 intend to apply the Advanced IRB Approach.

Credit institutions can gain an idea of “average” or “expected” annual losses in credit business on the basis of historical default and loss data. Expected loss (EL) is a calculable cost component of credit business, which ought to be covered by provisions and interest margins. Regulatory capital should therefore be held in reserve only for unexpected deviations from expected losses, also known as unexpected losses (UL). These deviations may potentially be large but occur relatively infrequently. A typical example of this is when numerous borrowers default simultaneously in a year, such as during a recession. The UL calibration also corresponds to the way banks determine their economic capital.

Based on the comments regarding the third consultative paper (CP3), the Basel Committee recalibrated the risk weights for claims in the IRB Approach, thereby following the UL concept. The new risk weights are presented in a technical annex to this article along with further theoretical information on UL calibration.

The UL calibration in the IRB Approach entailed two major consequences. Firstly, credit institutions now have to show that they – in line with the above considerations – have actually set aside sufficient provisions to cover EL. Insufficient coverage of EL will lead to a deduction of capital equal to the margin of the shortfall. If credit institutions set aside more provisions than necessary based on their EL calculations, the surpluses may be recognised as additional capital up to a certain level.

*Calibration to
unexpected
losses (UL)*

*Consequences
of recalibration*

Secondly, UL calibration means that capital no longer has to be maintained in reserve for defaulted loans. The reason for this lies in the Basel risk model, in which LGD is entered as a risk-free constant. In reality, however, defaulted loans are fraught with risk since the actual recoverable amounts are uncertain. Defaulted loans should therefore be given capital backing which also maps, in particular, adverse economic influences on the recovery rate.

The following solution was found: credit institutions should no longer orient their internal LGD estimates to historical default-weighted average LGDs but to conservative scenarios of the business cycle. Credit institutions are to estimate a "downturn LGD" containing probable losses during an economic downturn. For defaulted loans, there is now a capital charge consisting of the difference between the conservative downturn LGD and the provision conditioned by the current economic situation.

The technical details and models explaining the theories underlying both consequences of the EL-UL decisions are explained in the technical annex.

Downturn LGD still not very widespread

Downturn LGD is still a relatively unknown concept in internal risk management. Supervisors will therefore work together with banks to develop suitable methods for calculating downturn LGDs internally. In addition, it is to be established on which national markets and for which types of assets and collateral average LGD and downturn LGD differ significantly from one another. For classes of markets, assets and collateral without a sig-

nificant difference, it will remain possible to use expected default-weighted average LGDs.

As already mentioned earlier, institutions will need supervisory approval before they can apply the IRB Approach. It can be granted to institutions upon application and following an on-site audit. This audit looks at compliance with minimum qualitative and quantitative requirements. These minimum requirements are aimed firstly at ensuring the reliability of banks' internal estimates of the PD, LGD and EAD risk parameters and thus capital adequacy. Examples of such requirements include the implementation of a uniform definition of default prescribed by Basel and Brussels or the validation of estimated risk parameters, for example, by comparing them with actual defaults and losses.

Secondly, the minimum requirements are intended to ensure that banks' internal rating systems are actually used for their respective institutions' risk management. An example of this is the use of rating information to set limits and define responsibilities in management information systems and to calculate risk-appropriate capital charges.

The minimum requirements have not changed much since the second Basel and Brussels consultative papers. They were already described in detail in a *Monthly Report* article published in January 2003.

Credit institutions using the IRB Approach should transfer all significant asset classes to this approach within a reasonable time-

Minimum requirements of the IRB Approach

Partial use of the IRB Approach

frame. Permanent freedom of choice between the Standardised Approach and the IRB Approach for asset classes would potentially lead to “cherry-picking” between the two approaches, with institutions being tempted to choose the approach holding out the promise of a lower capital charge. In both the Basel Framework and the draft EC Directive, therefore, permanent use of the Standardised Approach is, in principle, permitted only for portfolios with a non-material (meaning insignificant) volume and risk content. The Commission’s proposed Directive, however, goes even further. For example, according to the envisaged EC rules, institutions will be able to permanently remove exposures to central governments and subordinate levels of government of the home country (regional and local government) from the IRB Approach. In addition, smaller credit institutions will also be allowed to leave exposures to other banks in the Standardised Approach on a permanent basis. In smaller institutions, this portfolio may be significant in terms of volume and risk; in many cases, however, it will contain only a few material counterparties, which would make the development of a rating system unduly burdensome. This is not an option for major and especially internationally active institutions.

Initial ideas about the national implementation of partial use

Initial discussions with the banking industry have revealed that both EAD and risk-weighted assets (RWA) should be used as an assessment basis for the transitional partial use of the IRB Approach during the national implementation process. Institutions should be allowed to use the IRB Approach if at least 50% of their credit exposure – expressed as

EAD – and 50% of their credit risk – expressed as RWA – are valued using internal ratings approved by supervisors. With regard to permanent partial use for a remainder (“exit threshold” from the transition period), opinions still differ; the banking industry’s proposals range between 3% and 20% of EAD/RWA which should be kept in the Standardised Approach permanently. The German supervisory authorities are currently in favour of a range between 5% and 8%.

Credit risk mitigation techniques

In future, credit risk mitigation methods³ used in banking practice should be given greater supervisory recognition than in the past. For example, in future, collateral that is typical of medium-sized entities such as receivables and physical collateral can be employed to reduce the capital charge. The chart on page 81 gives an outline of eligible collateral in the individual credit risk mitigation approaches.

Eligible collateral

There are two approaches which banks may use to determine the risk weight for financial collateral. Under the simple approach, the borrower’s risk weight is replaced by the risk weight of the collateral for the secured part of the exposure. Under the comprehensive approach,⁴ the amount of the exposure is reduced by the adjusted value of the collateral. Potential changes in the values of assets and collateral over time are taken into account

Two approaches for recognising financial collateral

³ These include financial and physical collateral, receivables, guarantees, credit derivatives, on-balance sheet netting and off-balance sheet netting.

⁴ Only the comprehensive approach may be used by IRB banks.

through the application of "haircuts". These haircuts depend on factors such as the type of collateral, the assumed holding period of the underlying transaction and the frequency of revaluation. Banks may use supervisory haircuts but also have the option of making their own estimates of haircuts.⁵

Netting reverse repos

For repo-style transactions falling under a bilateral netting agreement with a counterparty, banks will, in future, be allowed to make their own estimates of value at risk (VaR) in place of the comprehensive approach. This is predicated on supervisory approval of the VaR model to be used. Studies have shown that this significantly reduces the capital requirements for this type of transaction.

Collateral in the Foundation IRB Approach

In the Foundation IRB Approach, collateral is recognised through reducing LGD. For eligible financial collateral, the LGD for the secured part of the exposure is reduced to 0%. The adjusted value of the collateral is determined according to the rules of the Standardised Approach. For other collateral – in comparison with the third consultative paper – LGD is reduced to 35% (for receivables and real estate collateral) or 40% (for other collateral). For these types of collateral, an additional overcollateralisation of 125% (receivables) or 140% (real estate and other collateral) is required.

Guarantees and credit derivatives

Warranties⁶ and credit derivatives are risk-weighted – as in the past – by assigning the (lower) risk weight of the guarantor to the secured part of the loan (substitution approach). The range of eligible guarantors has

Eligible collateral under Basel II

Standardised Approach

- Cash
- Gold
- Debt securities issued by sovereigns, banks and other entities rated above a certain minimum category
- Unrated bank debt securities which are listed on a recognised stock exchange
- Equities
- Mutual fund shares
- Real estate collateral

Foundation IRB Approach

- Receivables
- Other forms of collateral recognised by the national supervisor

Advanced IRB Approach

- No restrictions on the range of eligible collateral if the credit institution can provide reliable estimates of the value of the collateral

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been expanded to include, in future, all sovereigns and banks with a lower risk weight than the borrower as well as non-banks as of a minimum rating of A- (or with a certain maximum PD in the Foundation IRB Approach). In addition, certain government counter-guarantees will now also be recognised.

Another new aspect is that collateral and warranties will be recognised as mitigating risk even if there is a maturity mismatch between the underlying exposure and the collateral instrument. The extent of the risk mitigation thus depends on the ratio of the

Recognition of maturity-mismatched hedges

⁵ Banks' own haircut estimates are recognised if certain minimum qualitative and quantitative requirements are met.

⁶ These also include guarantees provided they meet the minimum requirements for warranties.

hedge's residual maturity to the exposure's residual maturity. The hedge must have an original maturity of at least one year and a residual maturity of at least three months.

Securitisation exposures

The securitisation of assets is one of the most rapidly growing business lines of German and international banks. At the same time, it is a highly complex field. The new Basel Framework will, for the first time, create an internationally harmonised standard for the supervisory treatment of these transactions. This will significantly reduce the incentive for capital arbitrage, which was a key motive for the securitisation of claims in the past, and risk management and refinancing aspects will assume a more prominent role.

For a bank that securitises its own assets (originator), capital relief is contingent on an effective and significant risk transfer. There are no explicit limits on the volume of securitisation exposures that the originator may retain – except for the significant risk transfer exposure. This creates the necessary flexibility for a regulatory interpretation based on the economic impact of a transaction. The operational requirements for supervisory recognition of risk transfer are identical for securitisation exposures in the Standardised Approach and the IRB Approach. A distinction is made with regard to the capital charge on securitisation exposures held by originators or investors in order to take due account of the different degrees of knowledge and experience of risk management at the individual institutions.

The Standardised Approach for securitisation exposures is generally modelled on the system used in the general Standardised Approach for credit risk. However, for tranches with an external rating of less than Baa3, higher risk weights are applied, and, for unrated positions as a matter of principle, a deduction of capital (evenly split between core capital and additional capital) is required. This more conservative approach takes account of the high concentration of risk in subordinate securitisation exposures and avoids creating the incentive to explicitly forgo an external rating for tranches with poorer credit ratings.

The IRB Approach for securitisation exposures deviates from the general credit risk backing rules in the IRB Approach since no internal estimates of tranche-specific PDs, LGDs etc are taken into account. Accordingly, no distinction is made between a Foundation and an Advanced Approach for securitisation exposures. There are three ways to calculate the capital requirement for a securitisation exposure: the external Ratings-Based Approach (RBA), the Supervisory Formula (SF) and the Internal Assessment Approach (IAA), which is permitted only for a limited scope of application.

The RBA must be applied to all securitisation exposures of IRB banks for whose risk assessment an external rating exists. A certain risk weight is assigned to each rating category. However, in contrast to the Standardised Approach, the RBA segments rating classes more finely and has a greater range of risk weights, which also takes account of the seniority of a tranche and the granularity of the

Standardised Approach for securitisation exposures

IRB Approach for securitisation exposures

Ratings-Based Approach

Creation of uniform international standards

Principle of significant risk transfer

underlying pool of exposures. Moreover, the RBA does not distinguish between originators (directly or indirectly the original holders of underlying exposures) and investors.

*Supervisory
Formula*

The SF and IAA may be applied to unrated exposures. Some relief in the calculation of the inputs was envisaged for the use of the SF. This particularly concerns the key determinant, the regulatory capital requirement for the underlying portfolio prior to securitisation plus the EL of the portfolio (K_{IRB}). K_{IRB} as an input into the SF may be calculated on an aggregate portfolio basis instead of on an individual borrower basis as in the IRB Approach.

*Internal Assessment
Approach*

With the IAA, the Basel Committee has permitted the limited use of internal tranche-specific risk assessments, thereby taking into account a market standard which has become established practice for asset-backed commercial paper (ABCP) programmes. The IAA of the institution in question must be based on the methodological approaches of recognised rating agencies. The bank calculates the capital requirement by assigning its internal assessment to the rating scale of a recognised rating agency and risk-weighting the exposures using the RBA. Supervisory approval is required for the use of the IAA.

*Impact on
liquidity
facilities*

The relief in the use of the SF and the introduction of the IAA means that many unrated securitisation exposures such as liquidity facilities are treated considerably more favourably than in the third consultative paper. In this manner, the Basel Committee has attempted to strike a balance for unrated exposures between conservative treatment and the most

Risk weights for securitisation exposures

%				
External rating ¹	Standardised Approach	IRB Approach		
		Senior tranches + IAA	Base risk weights	Non-granular pool
Aaa	20	7	12	20
Aa	20	8	15	25
A1	50	10	18	35
A2	50	12	20	35
A3	50	20	35	35
Baa1	100	35	50	50
Baa2	100	60	75	75
Baa3	100	100	100	100
Ba1	² 350	250	250	250
Ba2	² 350	425	425	425
Ba3	² 350	650	650	650
Below Ba3 and unrated	Deduction	Deduction	Deduction	Deduction

¹ For example, Moody's. — ² Deduction if held by the originator.

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extensive consideration of established banking practices.

Treatment of operational risk

As is the case for credit risk, there are likewise three methods of calculating the regulatory capital charge for operational risk: the Basic Indicator Approach (BIA), the Standardised Approach (TSA) and the Advanced Measurement Approaches (AMA).⁷ In similar fashion to credit risk, this order of progression indicates a continuum of increasing sophistication, management requirements and risk sensitivity, and thus a trend towards falling capital charges.

Three methods for calculating capital charges

⁷ In addition, an "Alternative Standardised Approach" has been developed specifically for non-G10 banks.

Methods of determining operational risk

Basic Indicator Approach	$K_{BIA} = \text{gross income} \times \alpha; \alpha = 15\%$
Standardised Approach	$K_{TSA} = \sum \text{gross income}_{1-8} \times \beta_{1-8}$ ¹
Advanced Measurement Approaches	An internal measurement method is used to calculate capital requirement

Partial use of AMA and the BIA/TSA is possible

¹ $\beta = 12\%$ for retail banking, retail brokerage and asset management; $\beta = 15\%$ for commercial banking and agency services; $\beta = 18\%$ for corporate finance, trading and sales, and payment and settlement.

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The simpler approaches

In the simpler approaches, the minimum capital requirements are based on gross income⁸ – as an indicator of an institution’s business activity – multiplied by supervisory factors α (in the Basic Indicator Approach) or β_{1-8} (in the Standardised Approach). Internal empirical studies by the Basel Committee have shown a positive correlation between gross income and operational losses. All the same, the Basic Indicator Approach and the Standardised Approach are both relatively “coarse” methods.⁹

Advanced Measurement Approaches

The Basel Committee permits the use of banks’ own Advanced Measurement Approaches for the calculation of minimum regulatory capital under certain conditions despite the lack of an industry standard for capturing operational risk. Credit institutions

are working hard to develop and refine these methods. Subject to compliance with supervisory eligibility criteria, banks prefer a variety of approaches and measurement methods, as there is currently neither a single “best practice” nor may it be safely assumed that such a practice will be identified on the basis of the banks’ individual risk profiles. This variety will place high demands on supervisors in their model approval procedures for AMAs.

The large amount of time and effort needed to apply an AMA and especially the quantity of data required for calculation, moreover, mean that supervisors are willing to embark on new paths in cross-border issues, too. On that vein, an AMA bank – contingent on the approval of its responsible home and host supervisors – will be allowed to waive the individual calculation of regulatory capital for the operational risk of insignificant foreign subsidiaries and opt instead to allocate the capital calculated using the AMA of the group after prior consultation with supervisors. Supervisors expect this to boost the development of more risk-sensitive allocation mechanisms compared with the procedures currently available for measuring operational risk capital charges.

Cross-border AMAs

The European Commission is planning to implement operational risk capital relief for securities firms since they already generally have to hold one-quarter of their other indir-

Treatment of securities firms

⁸ Gross income = net interest income + commissions + net result of financial operations + other operating income (short form).

⁹ Both the Basel Committee and the European Commission intend to reconsider the calibration of the Basic Indicator Approach and the Standardised Approach once more risk-sensitive data are available.

ect costs as minimum capital to back other risks. The EU proposal permits, for instance, smaller securities firms (called 50K firms) to maintain their status quo.

Pillar 2: The Supervisory Review Process (SRP)

Basel principles on Pillar 2 unchanged

The four fundamental principles on which Pillar 2, the Supervisory Review Process (SRP), is based, have not been changed in the Basel text since the third consultative paper. Rather, new wording on the implementation of the SRP by national supervisors has been incorporated in order to deal with the discretionary scope implied by the SRP in a transparent and responsible manner. Moreover, cross-border cooperation between supervisors will be intensified in the interests of the banks.

Cross-border implementation

This aspect is addressed in the "High-level principles for the cross-border implementation of the New Accord", likewise published by the Basel Committee. Responsibility for the supervision of a legal entity within a banking group always rests with the national supervisory authority where the legal entity is located. This national jurisdiction, however, is supplemented by intensive cooperation and exchanges of information between all of the authorities involved and is coordinated by the authority responsible for the supervision of the group on a consolidated basis.

Development of the European Commission's implementation plans

In order to make further progress in developing the single European financial market, the European Commission, too, has placed a high priority on the coordinated cross-border ap-

plication of the new rules. Its proposal for a Directive emphasises a level of convergence exceeding the Basel Framework and supervisory cooperation within the European Economic Area.

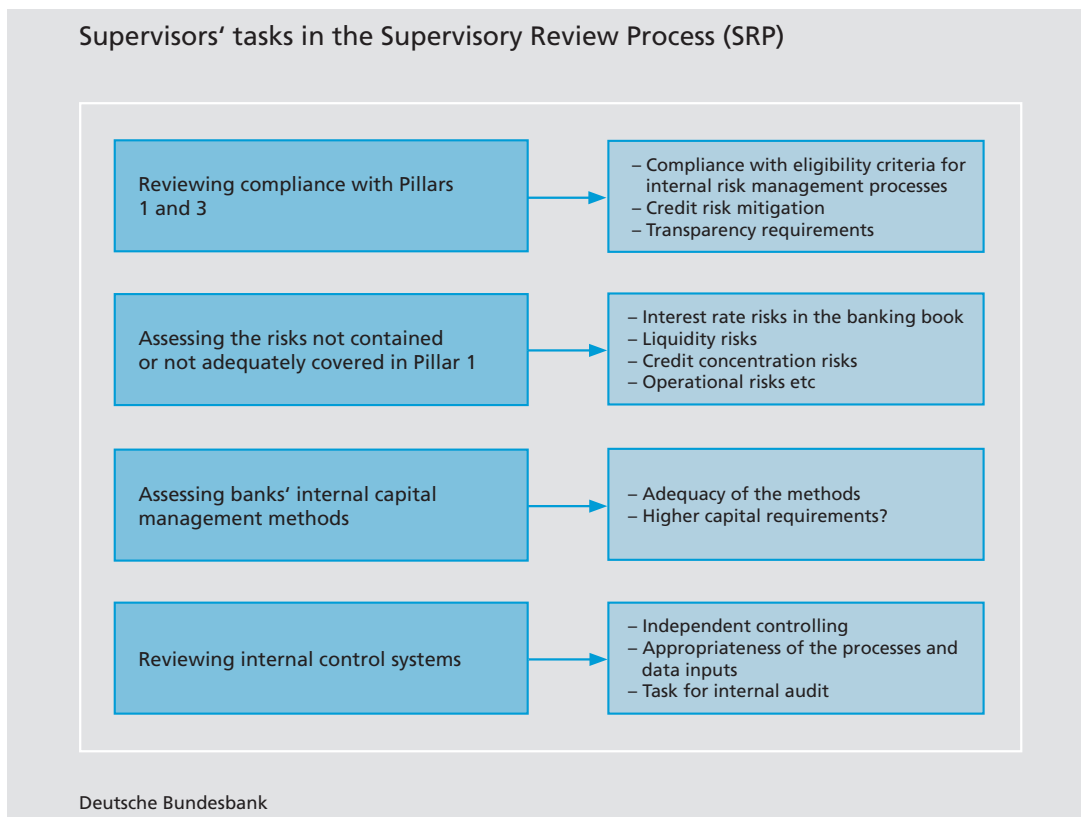
Convergence in the European Economic Area is to be understood as maximum harmonisation in the transposition of the European Directives into national law and the convergence of the application of these rules in supervisory practice. The Commission's proposal envisages the centralised disclosure of national supervisory regulations and practices to create transparency and to considerably facilitate the comparability of supervisory regimes across countries.

The Commission's proposal also envisages the possibility of a group submitting a single application for the use of IRB and AMA Approaches; as a consequence, the supervisors of the group's members would then need to jointly determine¹⁰ whether to authorise the procedure. If this is not accomplished within six months, the Commission's proposal envisages determination by the supervisor of the parent company. Whilst this approach is understandable in terms of simplifying matters for the groups of institutions in question, the wording gives rise to a host of legal, political and practical supervisory issues. These questions will play a key role in the European Council and the European Parliament.

Regulatory and supervisory convergence

Cross-border cooperation among supervisory authorities

¹⁰ The text of the draft Directive (which is currently available only in English) uses the term "determination" here and deliberately avoids "decision", which would correspond to the national administrative act of deciding on an application.



The Pillar 2 concept of regulatory capital in conjunction with the issue of additional regulatory capital requirements and the double proportionality of Pillar 2 were further key aspects that required special attention in transposing the SRP principles of Basel II into a European Directive.

Internal capital and additional regulatory capital requirements in Pillar 2

Whereas Basel uniformly uses the term "capital", the proposed Directive clearly distinguishes between "own funds" and "internal capital". Generally speaking, own funds cover only the risks according to the Pillar 1 supervisory calculation requirements. For the second pillar, the proposed Directive goes further in envisaging that all institutions have internally developed processes to manage the amount of capital they themselves deem ad-

equate to support their current and future risk.

Given the variegated nature of the German banking system, the double proportionality of the second pillar expressly envisaged in the proposed Directive is of major importance. Both the risk management and measurement of internal capital as well as the intensity and frequency of supervisory review have to be oriented to the size, complexity and risk profile of the individual institution and its importance for system stability. The system relevance is also mandated as a criterion for the intensity and frequency of supervisory review.

Double proportionality

On-site audits can be divided into the following categories: eligibility reviews for banks' internal procedures for measuring and man-

Audits of banking operations clearly assuming greater importance

aging market, credit and operational risk; reviews of ongoing compliance with Pillar 1 requirements, and minimum requirements for the structure and organisation of institutions' risk-relevant operations (see chart on page 86).

Today's audits of banking operations already address elements of the future SRP (audits of internal market risk models pursuant to section 7 of Principle I and audits for compliance with the "Minimum Requirements for the Credit Business of Credit Institutions" and the "Minimum Requirements for the Trading Activities of Credit Institutions").

BaFin and Bundesbank developing "Minimum Requirements for Risk Management"

This type of audit will be expanded in order to do justice to the Pillar 2 supervisory requirements. Besides streamlining the existing supervisory minimum requirements, this is the reason why the Federal Financial Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht, or BaFin) and the Deutsche Bundesbank are working to develop "Minimum Requirements for Risk Management". The existing "Minimum Requirements for the Trading Activities of Credit Institutions" and the "Minimum Requirements for the Credit Business of Credit Institutions", as well as the "Minimum Requirements for the Internal Audit Function of Credit Institutions", are to be integrated into the "Minimum Requirements for Risk Management" with as few changes as possible. In addition, requirements for other aspects of the SRP need to be newly developed, such as requirements for the management of interest rate risk and for internal processes for the adequate backing of all key risks with internal capital. The advantage of integrating the existing minimum require-

ments into the "Minimum Requirements for Risk Management" is that this will create a uniform framework of rules. Building on the already existing minimum requirements, the "Minimum Requirements for Risk Management" will therefore formulate the qualitative supervisory requirements for institutions pursuant to Pillar 2. Once the new rules have taken effect, reviewing compliance with the "Minimum Requirements for Risk Management" will be a central element of the Supervisory Review Process.

Pillar 3: Disclosure of risk information

Pillar 3 is intended to enable the complementary use of market mechanisms for supervisory goals by subjecting banks to specific disclosure requirements. The final version of the revision mainly comprised the taking on board of changes in Pillar 1. This has resulted in a degree of detail in disclosure rules that has encountered some criticism from the banking industry. It must be borne in mind, however, that the markets should be able to sufficiently assess banks' risk profiles.

The transparency rules of Pillar 3 at the European level largely match the Basel Framework. However, some differences in terminology and definitions do exist, as in the case of own capital, the impact of which carries over from Pillar 1 to Pillar 3. A further key difference is that disclosure in the Basel Framework is generally on a biannual basis, whereas the current version of the EC Directive states that the disclosure frequency should generally be annual. This constitutes justifi-

Modifications to Pillar 3

Implementation of the rules in Brussels

able and reasonable relief for smaller non-capital-market-oriented institutions. In addition, Brussels will give national supervisors specific authority to require banks to disclose more frequently, to use a specific medium or location of disclosure and also to use specific means of verification.

Good insight into the risk and own funds situation

In both the development of Pillar 3 in Basel as well as in its transposition into European law, great emphasis was placed on an objective presentation of own funds, the capital requirements for individual risk categories and the risk profile pursuant to Pillar 1. In future, it will be important for markets to use the much improved insight into banks' risk and own funds situations offered by the Pillar 3 disclosures and for banks, for their part, to provide sufficient explanations for conspicuous changes in individual items, as and when necessary, in order to avoid misinterpretations. In this manner, Pillar 3 should provide a valuable contribution to further improving communication between the banking industry and the financial markets.

Harmonisation of prudential supervisory solvency reports in Europe

Reducing regulatory costs through a harmonised reporting system

The system of prudential supervisory reports on the solvency of institutions (Principle I in Germany) will continue to exist alongside the new disclosure requirements pursuant to Pillar 3. However, in the interest of minimising costs, particularly for internationally active banks, and to strengthen supervisory cooperation in Europe, the prudential supervisory reporting procedure will be matched to the

new capital Framework on a harmonised basis.

In preliminary deliberations on the feasibility of a harmonised European reporting system by the newly created Committee of European Banking Supervisors (CEBS), it is being discussed whether the composition of the capital ratio can be presented with a maximum of uniformity for all credit institutions regardless of the type of annual accounts (using the International Accounting Standards (IAS) or national accounting methods). In the coming months, the degree of detail of European reporting regulations in this area also needs to be clarified. Consideration is also being given to the extent to which a certain degree of flexibility regarding the details to be reported – given uniformly binding headings – could facilitate appropriate solutions.

CEBS preparing initiative for a harmonised reporting system

The introduction of group-level International Financial Reporting Standards (IFRS) with effect from 2005 requires that thought be given to joint European solutions in the field of supervisory reporting requirements for the balance sheet and the profit and loss (P&L) account, too. This is necessary not only out of cost considerations but also given that the relatively highly aggregated IAS classification principles for the balance sheet and the P&L account are relatively unsuited to supervisory purposes. At the European level, therefore, possibilities for a detailed uniform report on the balance sheet and the P&L account will need to be discussed in due course.

European solutions also appropriate for balance sheet and P&L

A fourth Quantitative Impact Study (QIS 4)

*Reasons for
another
Quantitative
Impact Study*

In parallel to the development of the revised Framework, the Basel Committee has already conducted three Quantitative Impact Studies (QIS) in the past few years. Supervisory authorities hope that a fourth Quantitative Impact Study will provide more reliable data on the calibration to unexpected losses, securitisation exposures and the Advanced Measurement Approach (AMA) for operational risk. Furthermore, the new methodological requirements for estimating LGD should be taken into account.

Nine of the G10 countries are currently planning to conduct a QIS 4 before the end of the year. Even in the run-up to the parallel calculation phase, this study can provide valuable information for issues that are still being discussed, especially regarding a future need for recalibration. In Germany, QIS 4 will be launched on 1 December 2004 and is to be completed by the end of February 2005.

Implementation periods and transitional arrangements

The Basel Framework is to have been implemented in the G10 countries by the end of 2006. The most advanced risk measurement approaches, ie the Advanced IRB Approach for credit risk and the AMA for operational risk, however, may be used for calculating regulatory capital only as of the end of 2007. This is intended to give institutions an additional year to meet the minimum require-

ments associated with these approaches. In addition, international competitive equality is to be maintained. The early implementation of advanced approaches in only a few countries could have an impact on competition.

The draft European Directive likewise specifies in detail the methods of calculating own funds that will be valid from 2007. By analogy to the Basel Framework, institutions are allowed to apply the Standardised Approach and the Foundation IRB Approach to credit risk and the Basic Indicator Approach and Standardised Approach to operational risk. Moreover, in 2007, all institutions will also have the option of using the current rules (Basel I) for measuring capital for that specific year. For institutions in countries in which the state of preparations is not very far advanced, this provides the necessary scope to begin using their preferred approach around the end of 2007 without first having to invest resources in the implementation of an approach that would most likely be used for only one or very few years.

At the Basel level, in 2006, a parallel calculation using the current and the new rules – similar to the Quantitative Impact Studies (QIS) of which several have already been conducted – is to be performed. The primary purpose of the parallel calculation is to review the risk-weighting functions once again and to make any necessary or appropriate adjustments. By contrast, the European Directive does not explicitly provide for a parallel calculation. However, institutions wishing to use the Foundation IRB Approach as of 2007 will need prior permission from supervisors based

Impact of the EL-UL decisions and other Basel Committee decisions up to June 2006

Based on the third Quantitative Impact Study (QIS 3), a rough re-estimation of the impact of the changes published with the new capital adequacy framework at the end of June 2004 was carried out. The table below shows the extent to which a bank with a capital ratio of 8% would have to adjust its capital in order to maintain this minimum capital ratio under the new Basel Accord.¹

Change in minimum capital requirements compared with the current Accord (without scaling in IRB)

%

Item	Standardised Approach	Foundation IRB	Advanced IRB
G10 Group 1 ²	11	- 2	- 5
G10 Group 2	3	-27	N/A
EU Group 1	6	- 7	- 9
EU Group 2	1	-24	N/A
GER Group 1	12	11	0
GER Group 2	0	- 15	N/A

In the Standardised Approach, the results for German banks are virtually identical to the G10 average; for Group 2 banks, the minimum capital requirements are unchanged compared with the current Accord.

The reasons why the results for German banks differ from the G10 and EU averages in the

¹ Changes in both the numerator (possibilities of offsetting provisions and EL) and the denominator of the capital ratio were taken into account. — ² A distinction was made between internationally active banks with a core capital of at least €3 billion (Group 1 banks) and all other banks (Group 2 banks). Data from 58 German credit institutions – six Group 1 banks and 52 Group 2 banks – were used in

IRB Approaches include the specific economic environment, possible uncertainty about how to apply the new Basel definition of default and the limited availability of data needed to estimate the key risk parameters PD and LGD. In certain cases, LGD estimates are likely to have been on the conservative side as a result.

The divergence between the results for Group 1 and Group 2 banks is due primarily to the difference in the volume of retail business. Owing to lower risk weights, a high volume of retail business will lead to lower minimum capital requirements.

If the results are aggregated for whichever approach is most likely to be applied,³ there is an average reduction of 4.2% in the minimum capital requirements across the G10. For German banks, however, a 6.5% rise was calculated. In order to ensure that the minimum capital requirements are maintained, which is a key goal of calibration in the entire system, the Basel Committee envisaged using – if necessary – a scaling factor to adjust risk-weighted assets for credit risk. Based on the QIS 3 data, they would have to be multiplied by a factor of 1.06 to offset the 4.2% reduction in the minimum capital requirements. The final calibration will, however, probably be conducted in 2006 on the basis of the results of QIS 4 and the experience gained during the parallel calculation phase.

the international comparisons. — ³ The aggregate results were often calculated separately for the Foundation IRB Approach and the Advanced IRB Approach. It must be noted that the calculation of the aggregate figures for the Foundation IRB Approach also used data from those banks that are highly likely to apply the Advanced IRB Approach, resulting in a double inclusion of the data.

on an on-site audit of their internal rating system. However, since it makes sense to perform such examinations only on rating systems that have already been implemented internally and are being used in daily credit business, this means that, in 2006, non-Basel institutions will also be required to have a technical lead-time in the Foundation IRB Approach; this, however, will be restricted to credit business and will not be a complete parallel calculation.

Outlook: National implementation of the new capital rules

Solvency Regulation

Most of the new rules will be implemented by adapting and adding to the Solvency Regulation (currently known as Principle I). This regulation specifies in detail the adequacy of own funds as required by section

10 of the German Banking Act. Work has already begun on implementing the changes to the capital adequacy rules. In the run-up to the actual legislative process, supervisors are already cooperating closely with institutions and associations of institutions in a "Working Group on the Implementation of Basel II" and in specific expert councils on individual aspects of the new Basel Framework (IRB Approach, collateral, securitisation exposures, operational risk, Pillar 2, Pillar 3). In this way, institutions' concerns can be addressed proactively so as to increase the overall efficiency of the implementation procedure.

The following Annexes provide further explanations and an overview of the subject matter of this article in tabular form.

Annex 1

Technical details of the calibration of risk weights in the IRB Approach

In principle, regulatory capital charges are intended to cover unexpected losses (UL). Expected loss (EL) is a calculable cost component of credit business which is supposed to be covered by provisions and interest margins. Specifically, the Basel risk weight functions now determine the regulatory capital requirement to cover the 99.9% quantile of the portfolio loss distribution function in a one-factor model less EL. In this example, for a normed EAD of one euro, EL is defined as the product of PD and LGD.

UL calibration is a key reason why the requirements for internal LGD estimations in the Advanced IRB Approach had to be rewritten. From a theoretical perspective, the LGD parameter can be understood as an average or expected, ie default-weighted, loss ratio that is not oriented to a specific economic scenario. The UL risk weight, by contrast, describes the loss that occurs if a systemic risk becomes significant, eg owing to an adverse economic scenario. To take account of this systemic risk, the input PD is converted into a "stress PD" by applying the appropriately adjusted UL risk-weight function prescribed by supervisors. For the LGD parameter, by contrast, the downturn scenario must already be included in the estimated

*Downturn LGD
in the
Advanced IRB
Approach*

Risk-weight functions for non-defaulted assets in the Advanced IRB Approach

In the following formulae, the LGD risk parameter denotes a downturn LGD.

I Capital charges for non-defaulted assets

1 Corporate, sovereign and bank exposures

$$RW(PD, LGD, M) = 12.5 \times \left[LGD \times N \left(\frac{G(PD) + \sqrt{R(PD)} \times G(0.999)}{\sqrt{1 - R(PD)}} \right) - PD \times LGD \right] \times \frac{1 + (M - 2.5) \times b(PD)}{1 - 1.5 \times b(PD)} \quad (1)$$

where $b(PD) = (0.11852 - 0.05478 \times \ln(PD))^2$

RW: Risk weights

N: Cumulative distribution function of the standard normal distribution

G: Inverse of the cumulative distribution function

R: Asset correlation as a function of PD

ln: Natural logarithm

The last term in formula (1) describes the maturity adjustment, which, in the case of exposure to corporates with annual reported sales and total assets of up to €500 million, can be fixed at 2.5 years at national discretion. The R(PD) correlation for exposures to corporates with annual reported sales in excess of €50 million, sovereigns and banks is determined as follows.

$$R(PD) = 0.12 \times \frac{1 - e^{-50 \times PD}}{1 - e^{-50}} + 0.24 \times \left(1 - \frac{1 - e^{-50 \times PD}}{1 - e^{-50}} \right) \quad (2)$$

In the case of the "corporates" portfolio, the R(PD) correlation for corporates with annual reported

¹ For enterprises with smaller annual reported sales, the lower limit is €5 million.

sales of up to €50 million also depends on the size S (in € million) of the enterprise.¹

$$R(PD) = 0.12 \times \frac{1 - e^{-50 \times PD}}{1 - e^{-50}} + 0.24 \times \left(1 - \frac{1 - e^{-50 \times PD}}{1 - e^{-50}} \right) - 0.04 \times \left(1 - \frac{S-5}{45} \right) \quad (3)$$

2 Retail exposures

$$RW(PD, LGD) = 12.5 \times \left[LGD \times N \left(\frac{G(PD) + \sqrt{R(PD)} \times G(0.999)}{\sqrt{1 - R(PD)}} \right) - PD \times LGD \right] \quad (4)$$

Correlations

2a) Residential mortgage loans

$$R(PD) = 0.15 \quad (5)$$

2b) Revolving credits

$$R(PD) = 0.04 \quad (6)$$

2c) Other retail exposures

$$R(PD) = 0.03 \times \frac{1 - e^{-35 \times PD}}{1 - e^{-35}} + 0.16 \times \left(1 - \frac{1 - e^{-35 \times PD}}{1 - e^{-35}} \right) \quad (7)$$

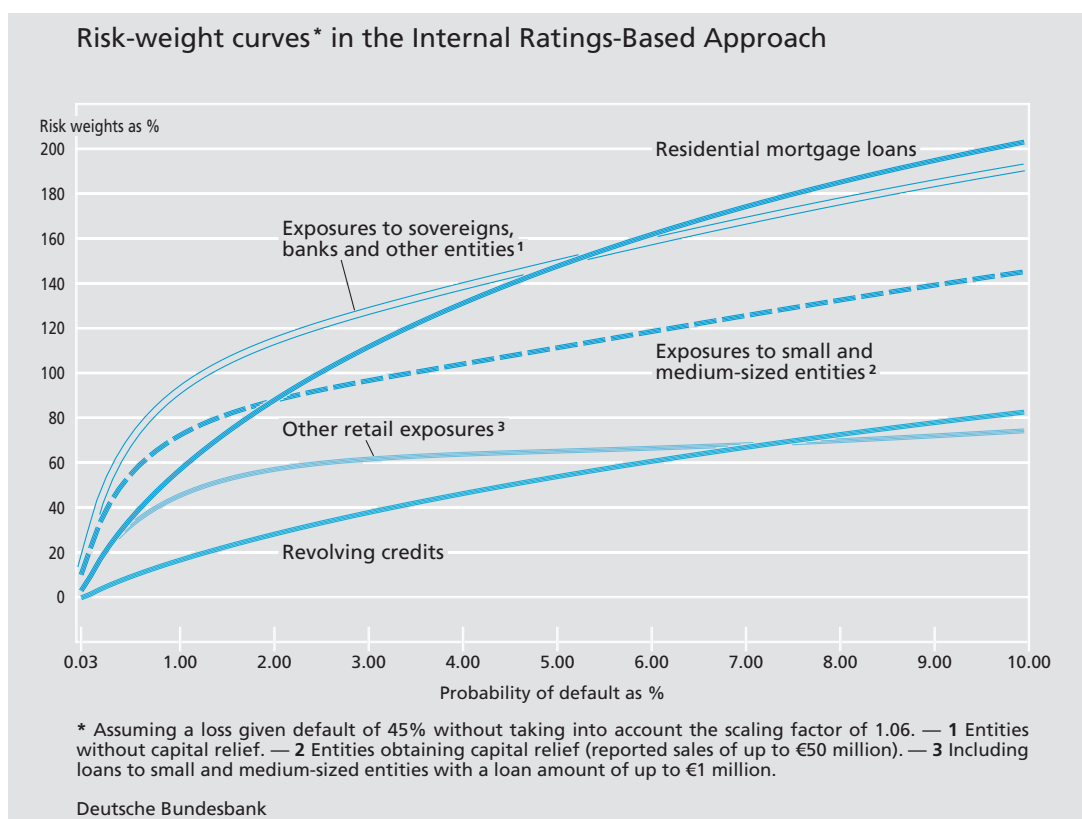
The regulatory capital requirement for a loan is calculated by multiplying the risk weight with the expected exposure at default (EAD) and the solvency coefficient (8%).

II Capital requirements for defaulted exposures

The capital requirement for defaulted exposures corresponds to the unexpected loss

UL = EAD × LGD – EL, where expected loss

EL = EAD × ELGD is calculated using the default-weighted ELGD.



value as it is entered into the UL risk-weight function without being transformed.¹¹

The mean LGD is accordingly a lower limit for the downturn LGD. This downturn LGD can be calculated from, for instance, LGDs in time periods characterised by large credit losses. For credit exposures where the LGD is independent of cyclical movements, mean LGD and downturn LGD could be identical.

In the new Basel Framework, the downturn LGD is applied to non-defaulted loans both when determining UL and when determining EL. This simplification allows credit institutions to use only a single estimated value of LGD to determine the regulatory capital requirements. The estimated value is calculated for each individual category of assets and/or collateral.

In the case of defaulted exposures, the LGD parameter is calculated individually for each exposure. A distinction is made here between mean LGD and downturn LGD. When calculating EL, an expected LGD value that takes into account the current economic environment and the current value of the collateral is estimated. The difference between downturn LGD and expected LGD is a UL risk weight for a latent, systemic risk in the part of a defaulted exposure for which no specific provision or write-offs have yet been made.

¹¹ The justification for this difference in the treatment of PD and LGD is that the impact of a downturn on LGD is dependent on additional factors such as the type of exposure and the type of collateral. Accordingly, the supervisory requirement of a function to convert median LGDs to downturn LGDs – analogously to the approach applied to PDs – would ultimately lack sufficient flexibility and risk sensitivity.

*Risk-weight
functions*

The risk-weight functions are shown graphically in the above chart. Deducting EL as the product of PD and LGD in the second term of the risk-weight function (see formula (1) in the explanations on page 92) takes into account the fact that it only covers UL.

*Coverage of
expected and
unexpected
losses*

In addition, the UL calibration means that, in the IRB Approach, credit institutions must compare calculated expected losses with provisions set aside. Insufficient coverage of EL will lead to a deduction in equal parts from the group's core capital and additional capital. By contrast, surpluses of provisions can be recognised as additional capital up to 0.6% of the risk-weighted assets for credit risk. If the amount of provisioning exceeds EL, this does not necessarily mean that the credit institution has

set aside too much in provisions. Rather, deviations between EL and provisions can be due to differences in their calculation methodology. For example, regulatory EL is based on a one-year time horizon, whereas external accounting standards usually count the entire time to maturity of the exposure. In individual cases, this may lead to over-coverage of EL.

The inclusion of overcoverage of EL in additional capital is intended to promote the building of provisions. At the same time, competitive equality between institutions is to be maintained by setting an upper limit for the inclusion of provisions, since the rules and practices of building provisions differ from one country to another.