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Basel II and Banks

Key aspects and likely market impact

20 September 2005

Summary and conclusions

The first stages of Basel II are expected to be implemented from January 2007, with the most advanced risk measurement approaches only allowed to be used for calculating regulatory capital as of the end of 2007. With these dates approaching gradually, we summarise the main components of Basel II and look at the potential implications of the new framework on 1) the banks' capital bases and 2) risk-weightings for bank bonds, sovereign debt and covered bonds, as well as potential spread implications. However, a more accurate assessment of the impact on individual banks' capital levels and individual bonds remains difficult, given different portfolio mixes as well as the expected reliance of most major international banks on the internal ratings based approach, risk models and credit mitigation techniques to determine risk-weights, rather than standard risk-weights. Moreover, we expect a fair amount of national discretion on individual topics, further complicating an analysis of the new rules. Under the advanced internal risk measurement approaches, the formulas applied by the banks to different asset classes will be the same, but the inputs to these formulas will depend on the individual banks' internal data. It is therefore possible, at least in theory, that different banks could calculate different capital requirements for the same asset. In practice, however, regulators are working to ensure that such variations are limited.

We do not expect a sudden significant reduction in capital levels in the near term. The BIS clearly states that overall minimum capital requirements for the banking system are expected to remain broadly unchanged as a result of Basel II. Moreover, we expect regulators to continue to require capital cushions over and above the minimum requirements, while investor expectations, peer pressure and the credit ratings the banks want to maintain will also continue to influence required capital levels. Broadly speaking, we expect banks with highly rated loan and securities portfolios, highly sophisticated banks which already apply scientific portfolio risk management and use credit mitigation techniques, and banks with a strong retail and mortgage lending focus to benefit from lower capital requirements.

We expect banks to start restructuring their balance sheets ahead of Basel II, in order to mitigate the effect of the new rules on their capital bases. The question arises as to the potential impact on bond spreads from such potentially large asset movements. Here, we are of the opinion that the impact will be gradual. Basel II calls for a transition period to the new rules, and capital floors could remain in place beyond 2009 if necessary. Moreover, while implementation is set for end-2006, delays for implementation in some countries are a possibility. At the same time, Basel II is clearly only one factor that may drive spreads as demand for certain bonds may rise or fall as a result of the new rules. There are also bond specific credit and fundamental considerations, the fact that the investor base is not dominated by banks, but comprises a large amount of non risk-weighting sensitive investors, the general health of credit markets vs. other markets, as well as overall market technicals that all contribute to drive spreads. Moreover, the impact on spreads will also be dominated by the size and timing of such portfolio restructuring related asset movements by banks. For the time being, we expect implications to be limited.

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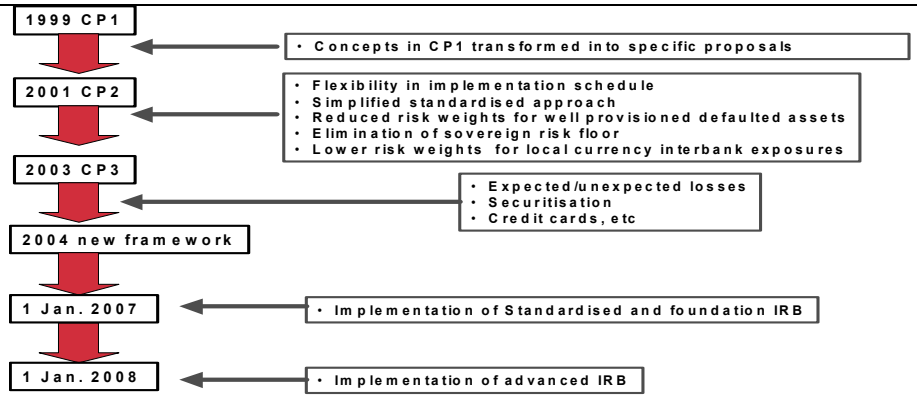
Chart 1: Evolution of the Basel II framework



Source: Nomura

Overview and recap

Background

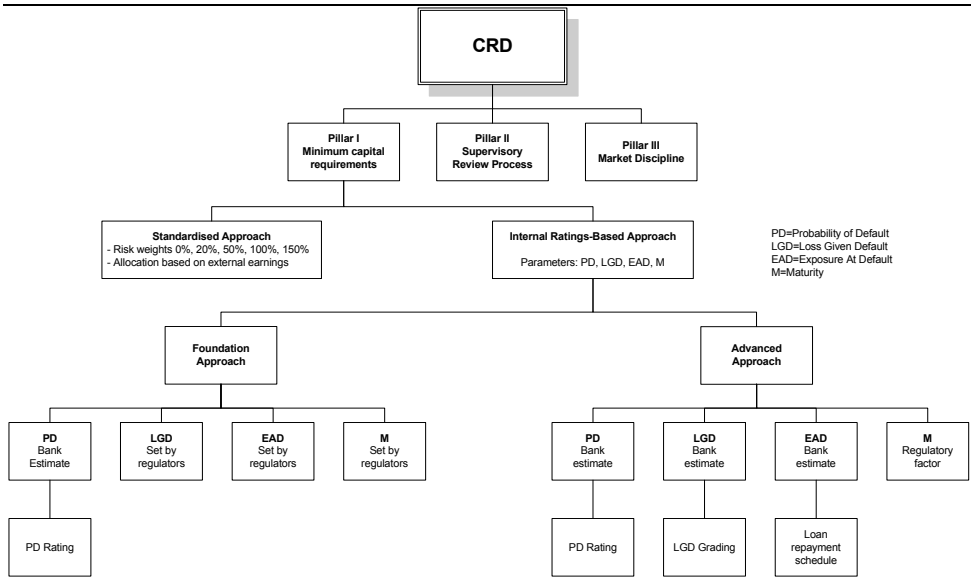
Following the publication of the first proposal for a new capital accord in June 1999, and two subsequent consultative packages in 2002 and 2004, the revised framework for the "International Convergence of Capital Measurement and Capital Standards", also known as Basel II was endorsed on 26 June 2004 by the central bank governors and head of the banking supervisory authorities of the G10 countries. The Basel II framework will also form the basis for the legislative changes underway in the EU. Thee old EU rules, dating from 1988, were contained in the Capital Adequacy Directive (1993) and the Consolidated Banking Directive (2000), which will both be updated by the proposed Capital Requirements Directive (CRD).

In order to address the increasingly apparent shortcomings of the current capital framework, Basel II will introduce more sophisticated approaches for calculating credit risk capital requirements, and aims to reduce the scope for regulatory capital arbitrage, allow for credit risk mitigation techniques, introduce a capital charge for operational risk as well as greater transparency through comprehensive disclosure requirements.

The Basel II framework is based on a three-pillar structure (see Chart 2) i.e. minimum capital requirements (Pillar I), the supervisory review process (Pillar II), and market discipline (Pillar III). Apart from including operational risk as a new category of risk in the definition of risk-weighted assets, the Basle II proposals and the European version, the Capital Requirements Directive (CRD), will allow banks to use their own risk assessments in calculating their capital requirements. To this end, there will be two approaches for calculating capital requirements, a standardised approach based on external ratings (i.e. banks using this approach would have to risk-weight according to the grids provided below) and an internal ratings based approach (IRB) to be used by the more sophisticated banks. Given that the IRB approach is expected to enable banks to lower their capital requirements, the majority of banks are anticipated to attempt to use this approach. In fact, even smaller savings banks (*cajas*) in Spain have joined efforts in order to be able to implement the IRB

approach. Banks also have the opportunity of gradually refining their risk measurement systems towards the more advanced approaches. The IRB approach itself breaks down into a foundation approach and an advanced approach; the latter expected to only be used by banks with highly sophisticated risk management.

Chart 2: The structure of the CRD framework



Source: Verband Deutscher Pfandbriefbanken

Table 1: Basel II - overview of strengths and remaining concerns

Strengths	Weaknesses
Improvement over existing accord; addresses capital arbitrage that were prevalent under Basel I	Major banking risks not reflected in Pillar One: interest rate risk in the banking book, concentration risk, strategic business risk, reputation risk; structural interest rate risk not covered by capital requirements, but included in Pillar II.
Brings regulatory capital closer to the concept of underlying risk-based economic capital	Differences in view of relative riskiness of certain business lines: high-risk corporate, mortgage banking, consumer lending
Reinforces trends already firmly in place: - scientific portfolio risk management, increasing use of credit mitigators and risk transfer techniques - increased disclosure - shift to retail, high quality corporate lending and potentially SMEs - underwriting then selling and trading corporate risk (with more use of credit derivatives or CRM techniques to hedge risk and free up economic and regulatory capital) - better pricing of risk for Specialized Lending (SL) – disintermediation potential	Pro-cyclicality – the Basel II framework may give rise to pro-cyclical effects due to the fact that the three main components of the IRB system are themselves influenced by cyclical movements. In particular, the higher risk sensitivity of banks' ratings systems may lead to increases in regulatory capital requirements in an economic downturn. However, such concerns have been addressed and pro-cyclicality has been significantly reduced in the latest proposals for the Basel II framework.

- impact on securitization market and selling of equity tranches or moving toward covered bonds	
Banking industry already uses advanced credit risk management	Model risk looms large
Basel II emphasises the measurement and management of key banking risks	Heavy burden on regulators
Pillar I includes, credit risk, market risk and operational	Basel II is overly complex and still contains some fundamental flaws
Pillars II and III fortify Pillar I	High implementation costs
Increased emphasis on stress testing is welcome	Total capital ratio remains at 8%, although no rationale has been provided for why the ratio is set at this level, and there are no changes to the definition of capital (although this is planned for review in both Basel and EU forums between now and 2009).
The philosophy of Basel II – more in tune with industry: - Pillar I embodies a more economic view of credit risk - Pillar II's guiding principles aligned with our rating criteria - Pillar III emphasis on disclosure backs our call for increased transparency	Newly calculated capital ratios under Basel II will be difficult to compare among banks, unless extensive disclosure is provided by banks. However, even if disclosure were extensive, the investor community may not have the expertise and resources to analyse such complex data.
Basel II promotes modern and effective risk management	Insufficient history for calculation of IRB variables may lead to wrong assumptions for LGD and other variables in a recessionary scenario.
Base II reinforces a trend already in place for banks to shift towards retail lending, given a more attractive risk-return trade off	
Large banking groups already use economic risk-based capital approach	

Source : Nomura

Key aspects of Basel II

The Standardised Ratings Approach

The standardised approach is modeled on the existing risk-weighting methodology for banking book assets. However, unlike the old approach for assigning risk-weightings, the new risk-weightings for assets under the BIS II proposals are more granular and are broken down according to external credit ratings. Banks, whose risk management procedures and internal models do not satisfy the minimum criteria required by the IRB approach, have to use the standardised approach.

This most simple application of Basel I will likely only be used by smaller, less sophisticated banks

Table 2: Summary of risk weights determined by credit ratings as used in the standardised approach*

Obligors	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to BB-	B+ to B-	Below B-	Unrated
Sovereigns	0%	20%	50%	100%	100%	150%	100%
Banks (Option 1)*	20%	50%	100%	100%	100%	150%	100%
Banks (Option 2)*	20%	50%	50%	100%	100%	150%	50%
Banks (Option 2 short-term claims)	20%	20%	20%	50%	50%	150%	20%
Corporates	20%	50%	100%	100%	150%	150%	100%
Securitzation Tranches	20%	50%	100%	350%	Deducted	Deducted	Deducted

Source: BIS, International Convergence of Capital Measurement and Capital Standards, June 2004; * in case of split ratings, the higher risk-weighting applies if the bank has two split ratings; if a bank has three ratings, the risk-weighting is based on the two highest ratings. *Option 1: risk-weight for a bank is derived from the external rating of the sovereign of the country in which the bank is incorporated; Option 2: Risk-weight is determined by the bank's external credit rating.

Impact of the standardised approach

It is clear from the grid above, that higher rated corporates and financial institutions and non-OECD higher rated banks will benefit from the new risk-weightings to be introduced under the standardised approach. On the other hand, lower rated sovereigns, lower rated banks and non-investment grade corporates will suffer, with a new risk-weighting of 150% to be introduced for B rated corporates, banks and sovereigns (Table 2).

Most banks expected to use Option 2 – allows for preferential < three-month risk-weights

Short-term claims under Option 2 are defined has having an original maturity of three months or less. Banks can apply a preferential risk weight for short-term (<3 months) domestic currency claims (when they have chosen to apply a lower risk-weight to banks' exposures to their sovereign or incorporation in domestic currency), assigning a risk-weight that is one category less favourable than that assigned to claims on the sovereign, subject to a floor of 20%[1]. Banks not using Option 2 have to use the following short-term exposure approach, under which A1/P1 rated short-term bank debt incurs a risk-weighting of 20%, A2/P2 rated 50%, and A3/P3 rated 100% (under Option 1)[2]. It is clear that risk-weights under this approach will be higher for banks rated lower than A1/P1. Currently, the majority of European banks have a short-term rating of A1/P1, and would therefore be 20% risk-weighted for short-term facilities under the BIS II standardised approach (Option 1). Banks using Option 2, have to apply the above short-term ratings driven credit assessment approach for short-term exposures >three months, but <one year.

Various special categories

There are also various special categories under the standardised approach, such as:

- preferential risk-weightings for lower risk retail lending (75% for non-mortgage retail loans),

[1] Basel II, paragraphs 62 to 64

[2] Basel II, paragraph 103

- 35% risk-weighting for residential mortgages fully secured on residential property (down from 50% currently), although these are weighted 100% once they are 90 days past due)
- commercial mortgages will generally remain 100% risk-weighted, but subject to the discretion of the relevant authority can be 50% risk-weighted (150% risk-weighted when 90 days past due); the UK will continue to risk-weight commercial mortgages 100%.
- loans to SMEs will be included in retail lending (subject to a limit of €1m).
- Commercial mortgages that meet strict criteria in well-developed and established markets, where loss rates meet low thresholds may be weighted at 50% for the first tranche of loans on qualifying commercial properties.
- Past due loans, i.e. past due for more than 90 days (other than a residential mortgage), risk-weighted 150% when the specific risk provisions are less than 20% of the outstanding amount of the loan; 100% risk-weighted when the specific risk provisions are no less than 20% of the outstanding amount of the loan; 100% risk-weighted when the specific provisions are no less than 50% of the outstanding amount of the loans, but with supervisory discretion to reduce the risk-weight to 50%.
- In both the Basel II and the CRD documents, holdings of bank or securities' firms capital instruments not deducted from regulatory capital continue to be 100% risk-weighted; holdings in other credit and financial institutions amounting to more than 10% of their capital have to be deducted from own funds, as well as holdings of subordinated debt of other credit and financial institutions where holdings exceed 10% of the capital in each case[3]. The FSA has recently stated that it will retain the requirements for the amount of any holding above 10% of another firm's capital to be deducted in full. Furthermore, investment firms have to continue to deduct reciprocal cross holdings of capital instruments to the extent that these are not material holdings.
- Significant minority investments in banking, securities and other financial entities where control does not exist, will be excluded from the banking group's capital by deduction of the equity and other regulatory investments. Under certain circumstances, such investments might be consolidated on a pro rata basis. Where deductions are made, these will be 50% from Tier 1 and 50% from Tier 2 capital.
- Significant minority and majority investments in commercial entities, which exceed certain materiality levels, will be deducted from banks' capital. National accounting and/or regulatory practices will determine materiality levels. Investments in significant minority and majority owned and controlled commercial entities below the materiality levels will be risk-weighted no lower than 100% for banks using the standardised approach. For banks using the IRB approach (see below), the investment would be risk-weighted in accordance with the methodology developed for equities and would not be less than 100%[4].

[3] CAD3

[4] Compare: http://www.bis.org/publ/bcbs107a.pdf

- Other assets: Investments in equity or regulatory capital instruments issued by banks or securities firms will be risk-weighted at 100%, unless deducted from the capital base as described above.
- Off-balance sheet commitments[5]: These will be converted into credit exposure equivalents through the use of credit conversion factors (CCF). The most important ones are as follows:
  - Commitments with an original maturity of up to one year and commitments with an original maturity over on year will receive a CCF of 20% and 50%, respectively.
  - Lending of banks' securities or the posting of securities as collateral will receive a CCF of 100%
  - Short-term self-liquidating trade letters of credit will receive a CCF of 20%.

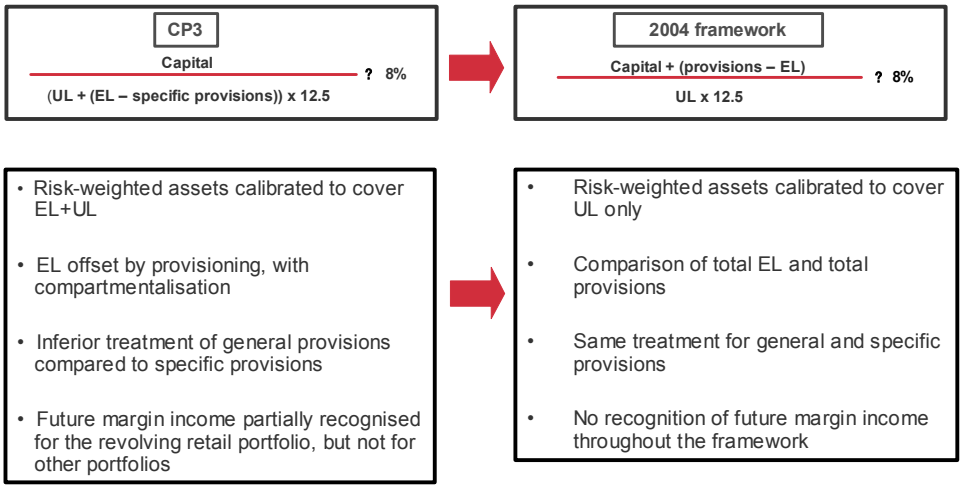
The Internal Ratings Based (IRB) Approach

We expect most of the banks we cover to use one of the internal ratings based approaches

Effectively, the IRB approach allows banks to quantify certain key elements needed to calculate their capital requirements. As a result, the risk-weightings, and thus the capital charges, are determined via a combination of quantitative inputs provided either by the banks themselves or the supervisors and risk-weighting functions specified by the Basel Committee on Banking Supervision. In order to qualify for IRB treatment, banks have to comply with various requirements, including IT system requirements, disclosure and internal ratings systems.

Under the IRB approach, minimum capital requirements are based on the distribution of losses due to default in a portfolio of loans or similar instruments. The time horizon for the assessment of default risk is set at one year. The IRB model assumes a confidence level of 99.9%, and covers only unexpected losses (UL), i.e. losses, which are not covered by provisions. Credit risk mitigation techniques will be allowed for the IRB approach.

Chart 3: Treatment of Expected (EL)/Unexpected (UL) losses under the IRB approach



Source: Nomura

[5] Basel II, Article 13, paragraphs 82 to 89

Under BIS II, the calculation of capital requirements for a loan's default risk includes six components:

- **Probability of default (PD):** an estimate of the likelihood of a borrower defaulting on its obligations within a given time period, i.e. 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 exposure at default
- **Exposure at default (EAD):** anticipated exposure at the time of default
- **Maturity** of the loan
- **Correlation to systematic risk:** estimate of the link between the joint default of two separate borrowers.
- **Risk-weight function:** IRB risk-weights, specified under the Basel II framework, relate the loss forecast to minimum capital requirements

The IRB approach falls into the foundation IRB approach and the advanced IRB approach. The difference between the two IRB approaches is the definition of the input variables. While both approaches rely on the banks' own PD estimates, the banks' own estimates of LGD and EAD are included in the advanced IRB approach.

The application of one of the IRB approaches could therefore result in various banks coming up with different risk-weightings for the same asset, depending on their internal input. However, regulators have sought to limit wide discrepancies in risk-weightings (and hence capital allocation) for similar assets. Encouragingly, the results available from the German QIS 4 showed fewer differences compared with QIS 3.

The BIS has expressed its expectation for the large majority of internationally active banks to use the IRB approach. All financial institutions in Europe (EU member countries) will be required to adopt Basel II. Many of them will adopt the foundation IRB approach, with the major internationally active banks adopting the advanced IRB approach, and any other banks will apply the standardised approach. In the US, around seven or eight of the largest banking groups will likely be required to adopt the advanced IRB, with another 10 banks are expected to implement the advanced IRB approach on a voluntary basis. US regulators will not implement the foundation IRB and standardised approaches. Moreover, banks in Japan will implement both the IRB and the standardised approaches. Most banks in developing and emerging markets will likely aim to introduce the standardised approach.

Equity exposures under IRB approach

There are two approaches to calculate risk-weighted assets for equity exposures not held in the trading book: a market-based approach and a PD/LGD approach. It is up to supervisors to decide which approach or approaches will be used by banks, and in what circumstances. There are also some exclusions for certain equity holdings, these are subject to the capital charges required under the standardised approach[6].

[6] http://www.bis.org/publ/bcbs107.pdf, International Convergence on Capital Measurement and Capital Standards, sections 340, exceptions listed 356 and 358

- Market-based approach: banks will be allowed to calculate the minimum capital requirements for their banking book equity holdings using either a simple risk-weighting method of an internal models method.
  - Under the simple risk-weighted method, a 300% risk-weight is to be applied to equity holdings that are publicly traded and a 400% risk-weight for all other equity holdings.
  - Under the internal models method, IRB banks may use, internal risk measurement models to calculate the risk-based capital requirement. Under this method, banks must hold capital equal to the potential loss on the institution's equity holdings as derived using internal VaR models.
- PD/LGD approach: same methodology as for corporate exposures, subject to a series of specifications.

Operational risk

This is a new category or risk subject to capital requirements. There will be three methods for calculating a bank's capital requirements for operational risk.

1) basic indicator approach: a bank's capital requirement to cover operational risk is equal to 15% of its average gross annual income over the previous three years
2) standardised approach: a bank's gross income (three year average) is divided into eight different business lines. The capital charge is then calculated for each business line by multiplying the respective gross income by a factor (determined by the Basel Committee) assigned to that business line. The total capital requirement for operational risk under this approach is the sum of the individual capital requirements of these eight business areas.
3) advanced measurement approach: sophisticated calculation method, under which the operational risk charge is calculated on the basis of the banks' own internal operational risk management systems. The latter take into account, both actual internal and external loss data, as well as scenario analysis and factors relating to the bank's operating environment and internal controls.

Basel II - Impact on Banks

Impact on banks' capital levels

Impact on banks' capital levels will depend on the approach chosen and the banks' individual portfolio composition

A more accurate assessment of the impact on individual banks capital levels and bonds remains difficult, given different portfolio mixes as well as the expected reliance of most major banks on internal systems and risk models to determine risk-weights, rather than standard risk-weights. In other words, under the advanced internal risk measurement approaches, the formulas applied by the banks to different asset classes will be the same, but the inputs to these formulas will depend on the individual banks' internal data. It is therefore possible, at least in theory, that different banks could calculate different capital requirements for the same asset. In practice, however, we expect the regulators to ensure that such variations are limited.

We see the following significant limitations to assessing the impact of Basel II:

- Lack of sufficient public knowledge about banks' portfolios and their future risk-weightings, since this will also depend on whether banks will use the standardized or IRB approaches.
- Lack of precise knowledge as to how operational risk costs will be charged. According to QIS 3, the results for the standardized approach were not significantly different from the results under the advanced approach. However, the banks are expected to benefit from sharpening up some aspects of their risk management practices in preparation for the introduction of the operational risk charge.
- Lack of consistency, at least at this stage, as to how insurance activities will be accounted for. One treatment outlined in the Capital Accord is that banks deduct equity and other regulatory capital investments in insurance subsidiaries and significant minority investments in insurance entities (the UK's FSA has proposed deductions of 50% from tier 1 and 50% tier 2 capital for UK banks). An alternative to this treatment is to apply a risk weighting to insurance investments.

However, based on the workings of Basel II, we broadly expect the following banks to benefit from lower capital requirements under BIS II:

- Highly sophisticated banks which already apply scientific portfolio risk management and use credit mitigation techniques
- Banks with highly rated loan and securities portfolios
- Banks with a strong retail and mortgage lending focus (UK mortgage banks, Nordic retail banks, major Irish banks)
- Smaller, domestically oriented banks using the IRB approaches.

At the same time, the following banks are likely to see an increase in risk-weighted assets and hence capital requirements:

- Banks with high interbank exposures to non-OECD banks
- Banks with high non-OECD/non-investment grade sovereign exposures
- Banks with corporate exposures with above average PDs and LGDs and assets with longer maturities
- Banks with high equity holdings in the banking book

- Banks with high holdings of non-investment grade securitization tranches (BB+ to BB- 350% weighted)
- Banks with low retail exposures
- Capital markets banks with limited retail exposure (DB, Credit Suisse, UBS) will see higher weighted risk assets, reflecting higher capital costs from operational risk, securitization exposures and industrial/equity holdings.

We do not expect a sudden significant reduction in capital levels in the near term

The BIS clearly states that overall minimum capital requirements for the banking system are expected to remain unchanged as a result of Basel I. Rather, the main purpose of Basel II is to ensure better alignment of capital requirements with the underlying risk of their portfolios. Under the new rules, banks are therefore expected to redistribute capital according to risk profiles and business activities.

A study by the Bank for International Settlements (BIS) in October 2003, the third quantitative impact Study 3 (QIS3), examined the amount of capital that banks would use under each of the three methodologies. The study involved 365 internationally diversified banks in 43 countries and split banks into two groups, large internationally diversified banks with tier 1 capital over €3bn and other banks. QIS3 showed that minimum capital requirements would remain broadly unchanged for large banks operating internationally, based on the expectation that these banks would use the IRB approaches. QIS3 also concluded that capital requirements for smaller, domestically oriented banks could be substantially lower under the IRB approaches. Ultimately, however, the results varied significantly from bank to bank, depending on individual portfolio composition, as was to be expected. According to the Barcelona Report, published in 2004, the Basel II framework may slightly reduce the overall capital requirements for banks in the EU15 by around 5%. The report also estimated that there will likely be a redistribution of capital requirements among banks and between banking systems across countries[7].

Implementation not expected before early 2007

Moreover, implementation of Basel II and the EU's Capital Requirements Directive (CRD) is not expected until the end of 2006/early 2007. There will be a phasing in period, with banks being able to use the standardized or foundation IRB approaches from end-2006 and required to have had at least a year of parallel running ahead of implementation. Banks using the IRB approach are subject to a capital requirement floor, relating to their capital requirements under the existing Basel rules. For instance, a capital floor on capital required is set at 90% of the old Basel I rule from year-end 2007, while from year-end 2008 the capital floor is 80% of the old Basel I. The Basel Committee may also keep floors in place beyond 2009 should this be required. In other words, in the EU all firms can continue to use the Basel I rules during 2007 if they chose to do so. Those banks using the foundation approach can do so at any time during 2007, but for the advanced approach we expect the banks to continue to use Basel I until the beginning of 2008.

Phasing in should limit a drastic impact on banks' capital levels

This effectively means that the existing and the new Basel II rules will have to run simultaneously by the banks. This should, at least initially, limit any drastic impact on banks' capital levels. Moreover, under Pillar II, regulators can set minimum capital

[7] Compare ECB Monthly Bulletin, January 2005

requirements that are higher than those required by Pillar I. This will be driven by the risk profile of the bank and the supervisory process allowing early regulator intervention.

Table 3: QIS 3 - Changes in minimum capital requirements vs. the current capital accord*

% change in capital requirement	**Standardised approach**	**Foundation IRB**	**Advanced IRB**
Corporate	1%	-9%	-14%
Sovereign	19%	47%	28%
Bank	43%	45%	16%
Retail	-25%	-45%	-49%
- residential mortgages	-27%	-53%	-58%
- non-mortgage retail	-23%	-34%	-41%
- revolving exposures	-14%	-7%	8%
SME	-4%	-15%	-13%
- SME corporate	1%	-11%	-3%
- SME retail	-13%	-26%	-31%
Equity	6%	115%	114%
Trading book	12%	4%	2%
Securitized assets	86%	104%	130%
Overall credit risk	0%	-7%	-13%
Operational risk	10%	10%	11%
Overall change	**11%**	**3%**	**-2%**

Source: Basel Committee, QIS 3 supplementary information; * Group 1 banks only (i.e. large, diversified and internationally active banks with tier 1capital > €3bn); http://www.bis.org/bcbs/qis/qis3sup.pdf

As can be seen in Table 3 above, the overall capital requirements for Group 1 banks under the three risk-weighting approaches are 11% higher under the standardised approach, 3% higher under the foundation IRB approach and as expected lower, i.e. -2%, under the advanced IRB approach. While the average shift under the standardised approach is by no means material, there is still a clear incentive for banks to adopt the more sophisticated risk measurement approaches. Clearly however, there were significant variations within this average depending on the business profile of individual banks.

Following three completed Quantitative Impact Studies conducted by the Basel Committee in the last 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 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 QIS4 before the end of 2005. Even in the run-up to the parallel reporting period, this study can provide valuable information for issues that are still under discussion, especially regarding a future need for recalibration.

The results from the German QIS4, which are based on a complete set of data (as opposed to a focus on individual asset classes only in other countries), demonstrate that the minimum capital requirements for the German banking sector as a whole will remain more or less unchanged (-0.1%) under Basel II compared with the current Basel I regime. More specifically, for the majority of large, internationally active German banks the results under the IRB approaches have improved relative to QIS 3 (Table 4). The comparatively favourable results for Group 2 banks under all approaches, reflects a greater focus on retail activities among these banks, according to the Deutsche Bundesbank.

Table 4: Aggregate QIS 4 results for German banks

Approach	Number of banks	Weighting (%)	Change (%) vs. Basel I
Group 1			
Standard	0	0	7.30%
Foundation IRB	4	10.1	12.20%
Advanced IRB	7	31.9	9.70%
Group 2			
Standard	28	18.5	-7.50%
Foundation IRB	56	36.9	-6.40%
Advanced IRB	4	2.6	-27.50%
Total German banking sector	**99**	**100%**	**-0.10%**

Source: Deutsche Bundesbank

In March 2005, the Basel Committee on Banking Supervision re-discussed the schedules for national rule-making processes within member countries and decided to review the calibration of the revised Framework in spring 2006. In order to ensure that the envisaged review is based on the most recent, high-quality data and to evaluate the impact of the new proposals for the recognition of double default and trading book-related issues, the Basel Committee announced that it will undertake a fifth Quantitative Impact Study (QIS 5) between October and December 2005.

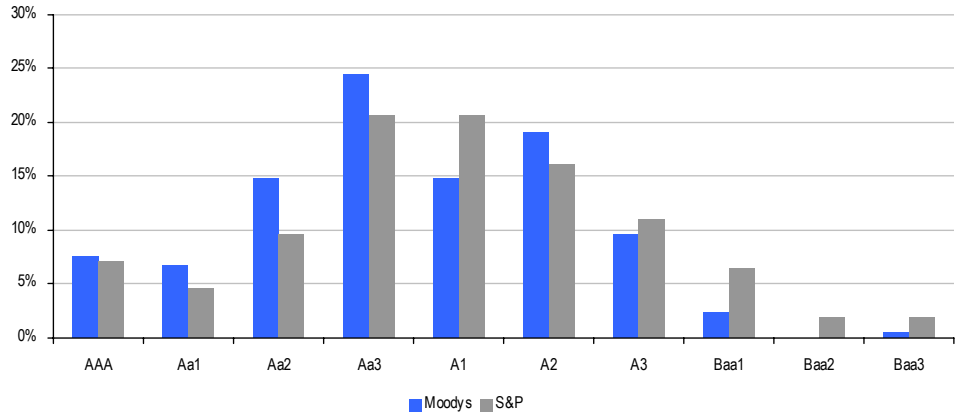
Rating agency considerations will also limit impact on capital levels

Despite a potential loosening of capital requirements in certain areas under Basel II, banks will have to continue to include rating agency considerations into their capital structure decision-making, in order to maintain ratings. For instance, Basel II reinforces the role of Tier 2 capital, to the extent that the use of Tier 2 capital is allowed to underpin substantial potential sources of risk in the banking sector, such as underprovisioned expected loan losses, insurance subsidiaries and investment in deeply subordinated tranches of securitizations. S&P has pointed out that the policy to make regulatory capital deductions in equal parts from Tier 1 and Tier 2 capital for risks in these areas may lead the banking industry to build a proportionally greater reserve of Tier 2 capital. However, the agency points out that certain Tier 2 capital instruments lack the permanency and loss absorption features that are required to include it into the agency's core capital calculation, and will therefore continue to require sufficient levels of Tier 1 core capital. Moreover, S&P points out that Basel II makes only minor changes to the existing guidelines for assessing market risk capital charges for securities classified as trading assets. The agency believes that Basel II understates the amount of capital required to prudently support market, operational and business risk in underwriting and trading securities. While this creates opportunities for trading-oriented banking groups to increase capital leverage, S&P said that it does not expect the banks to materially reduce capital as a result of Basel II. The agency clearly stated that it requires banks to have a cushion in capital resources above a worst-case scenario on a liquidation basis. We therefore expect banks' capital levels to continue to depend on regulatory considerations as well as investor expectations, peer pressure and on the credit ratings the banks want to maintain.

Market and spread impact – bank bonds

Under the standardised approach (Table 2, page 4), senior bank debt of AAA to AA- banks will continue to be risk-weighted 20%, while debt issued by A+ to A- rated banks will see its risk-weightings increase from 20% to 50%. While banks are certainly major buyers of other banks' senior debt, we expect the majority of major European banks to adopt one of the IRB approaches, and hence, do not expect the impact to be as significant as the standardised approach suggests. More specifically, under the IRB approach, risk-weightings for senior bank debt are estimated to be significantly lower than under the standardised approach (given an LGD of 45% for senior debt under the foundation approach), and for higher rated banks even below the current 20% risk-weighting, but no accurate data is available at this stage.

Chart 4: Overview of major European banks' senior ratings



Source: Moody's, S&P, Nomura (as at 7 September 2005)

As for subordinated debt, the 100% risk-weighting for holdings in other banks' capital below 10% of their own capital (holdings > than 10% are a deduction from their capital base) continues under the standardised approach[8]. Under the foundation IRB approach, subordinated bank debt is given an LGD of 75% (vs. 45% for bank senior debt), which could lead to a risk-weighting of below 100% for higher rated subordinated debt [9]. Given the low default history of bank bonds, even subordinated bank bonds, risk-weightings could benefit further under the advanced approach. Clearly, lower risk-weights of subordinated debt for banks using the IRB approach could increase their appetite for such debt. However, given that such lower risk-weightings will only apply to bank debt holdings below 10% of their own capital (the remainder will continue to be a one for one deduction from capital), the extent of a potential increase in demand from bank buyers for subordinated bank paper, and hence the impact on spreads from greater demand can not be quantified at this stage.

We expect banks to start restructuring their balance sheets ahead of Basel II, in order to mitigate the effect of the new rules on their capital bases. The question arises as to the potential impact on bond spreads from such potentially large asset movements. Here, we are of

[8] CRD Annex VI Pt 1 paragraph 38); mirrors Basel II paragraph 81

[9] CRD Annex VII Pt 2 paragraph 8(b).

the opinion that the impact will be gradual. Basel II calls for a transition period to the new rules, and capital floors could remain in place beyond 2009 if necessary. Moreover, while implementation is set for end-2006, delays for implementation in some countries are a possibility. At the same time, Basel II is clearly only one factor that may drive spreads as demand for certain bonds may rise or fall as a result of the new rules. There are also bond specific credit and fundamental considerations, the fact that the investor base is not dominated by banks, but comprises a large amount of non risk-weighting sensitive investors, the general health of credit markets vs. other markets, as well as overall market technicals that all contribute to drive spreads. Moreover, there impact on spreads will also be dominated by the size and timing of such portfolio restructuring related asset movements by banks. For the time being, we expect implications to be limited.

Impact of Basel II on sovereign risk weightings

The grid below provided by public sector specialist Depfa Bank shows that Zone A sovereigns, which currently benefit from a uniform BIS 0%, could move to a diverse range under Basel II. For instance, the Czech Republic (Rated A1) would move from BIS 0% to 20%, while current Zone B member Botswana (A2) would move from 100% to 20%. Most extreme would be Turkey (B2), which as a Zone A member is currently 0% risk-weighted, but under Basel II would be 100%. All National Regulators have an option to apply preferential ratings to domestic currency sovereign transactions. Given the low default history of investment grade sovereigns, the risk-weighting remains low under the IRB approach.

Table 4: Basel II impact – Sovereign risk weightings

	Basel I				Basel II				
External rating					Standard approach		National	IRB	
	Zone A		Zone B		Option 1	Option 2	exemption	Foundation	Advanced
AAA	USA	0%	Singapore	100%	0%		0%	0%	
AA	Italy		Chile*		0%			0%	
A	Japan*		Qatar		20%			0%	
BBB	Poland		Russia		50%			0%	
BB	N/A		Romania		100%			66%	
B	Turkey		Brazil		100%			89%	
Under B	N/A		Argentina		150%			91%	
Unrated	N/A		Algeria		100%			N/A	

Source: Depfa Bank investor presentation; * domestic currency rating;

Regulatory treatment of covered bonds BIS I vs. BIS II/ EU CRD

Most covered bonds are currently 10% risk-weighted

Art. 22(4) of the EU UCITS Directive[10] 85/611/EEC lists some eligibility criteria for the privileged treatment of covered bonds[11]. Annex VI of the CRD defines eligible assets. Covered bonds complying with these eligibility criteria can be risk-weighted 10%. There are some states that treat these bonds like any other bank bond with a risk weight of 20% (including UK, Italy, Portugal, Sweden). The new structured covered bond by ABN Amro, issued without a legal framework, is also 20% risk-weighted.

Basel I and Basel II do not specifically address covered bonds. The European version of Basel II, the Capital Requirements Directive

[10] UCITS stands for Undertakings for Collective Investment in Transferable Securities

[11] Compare European Commission, Working Paper on the Commission Services on the treatment of Covered Bonds, 07 April 2003

(CRD), drawn up based on a proposal from the Basel Committee, sets out that covered bonds will benefit from special treatment if they comply with Article 22(4) of the UCITS Directive and are collateralised by a series of eligible assets[12]. Under the Draft Directive, the weighting of covered bonds is based implicitly on the financial strength and therefore tied to the credit rating of the issuing institution, and is not based on the quality of the cover assets (see Tables 5 and 6), and differs from Basel II's approach to securitization. As a result, regulatory capital requirements for bank investors in covered bonds will increase if the senior unsecured rating of the covered bond issuer falls.

Risk-weighting of covered bonds under Basel II

As we mentioned above, under the standardized approach, the risk-weighting of covered bonds will be linked to the risk-weighting of the issuing institution. Within this approach, the national supervisor can choose between two options. Under Option 1, exposures to credit institutions will be assigned a risk weight according to the credit quality of the corresponding central government in which the credit institution is incorporated. As a result, covered bond exposures to the major € covered bond markets would obtain a risk-weighting of 10%.

Table 5: Covered bond risk weightings as per Option 1 standardized approach

Sovereign Rating	Risk-weight of covered bond issuer	Risk-weight of covered bond
AAA to AA-	20%	10%
A+ to A-	50%	20%
BBB+ to BBB-	100%	50%
BB+ to BB-	100%	50%
B+ to B-	100%	50%
Below B-	150%	100%

Source: CAD 3

Under Option 2, risk-weights are determined by the bank's external credit rating. Therefore, covered bonds issued by credit institutions that have senior ratings below AA- would no longer enjoy a 10% risk-weight under the Option 2 standardized approach.

Most banks expected to apply Option 2

Table 6: Covered bond risk weightings as per Option 2 standardized approach

Credit institution's rating	Risk-weight of covered bond issuer	Risk-weight of covered bond
AAA to AA-	20%	10%
A+ to A-	50%	20%
BBB+ to BBB-	50%	20%
BB+ to BB-	100%	50%
B+ to B-	100%	50%
Below B-	150%	100%

Source: CAD 3

Treatment of covered bonds under the IRB approach

A more sophisticated framework to determine risk-weights is provided by the IRB approaches. These approaches depend on a number of parameters for the calculation of risk-weights. As we have mentioned earlier, in the foundation IRB, banks will estimate the Probability of

[12] Compare CAD 3, Annex VI, Part 1, paragraphs 65 to 67

Default (PD) by obligor grade and the regulators provide the loss-given default (LGD) of the covered bond exposure. In the advanced IRB, both PD and LGD (i.e. the final economic loss stemming from all defaulted credits divided by the gross amount of all defaulted credits) are estimated by the credit institution.

For the foundation IRB approach, the Loss Given Default (LGD) is set at 12.5% (vs. 45% for bank senior debt). Banks using the advanced approach banks can get permission (from the regulators) to use their own estimates for PD of the issuer and the LGD of the cover pool. The LGD of 12.5% is generally estimated to produce a risk-weight of around 4-5% for the majority of highly rated covered bonds, which is significantly below the risk-weights under the standardised approach, and therefore more advantageous for bank investors. With banks providing their own inputs for LGD and PD under the advanced IRB approach, the calculation of risk-weights is impossible, without making significant assumptions. Nonetheless, the expectation is for the advanced IRB approach to produce similarly low risk-weights as the foundation IRB approach.

Conclusions for covered bonds under Basel II

Under the standardized approach, regulatory capital requirements will remain low for covered bonds of the highest rated issuers, but will increase for lower rated issuers. This may have an impact on relative pricing levels, since bank investors make up around 35-40% on average of the investor base in covered bonds. However, we expect such an impact to be small, since most large international banks are expected to adopt at least the foundation IRB approach, and hence capital requirements for covered bonds should generally remain low and even decline. Nonetheless, bank investors will likely become more sensitive to short-term changes in the risk profile and related potential ratings pressure, since the cost of holding equity against covered bonds will be linked to the issuer rating.

I,Beate Munstermann, a research analyst employed by Nomura International plc., hereby certify that all of the views expressed in this research report accurately reflect my personal views about any and all of the subject securities or issuers discussed herein.

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