Basel Committee
on Banking Supervision

Consultative Document

The New Basel Capital Accord

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BANK FOR INTERNATIONAL SETTLEMENTS

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The New Basel Capital Accord

Part 1: Scope of Application

A. INTRODUCTION

1. The New Basel Capital Accord (the New Accord) will be applied on a consolidated basis to internationally active banks. This is the best means to preserve the integrity of capital in banks with subsidiaries by eliminating double gearing.

2. The scope of application of the Accord will be extended to include, on a fully consolidated basis, holding companies that are parents of banking groups to ensure that it captures risks within the whole banking group.[1] Banking groups are groups that engage predominantly in banking activities and, in some countries, a banking group may be registered as a bank.

3. The Accord will also apply to all internationally active banks at every tier within a banking group, also on a fully consolidated basis (see illustrative chart at the end of this section).[2] A three-year transitional period for applying full sub-consolidation will be provided for those countries where this is not currently a requirement.

4. Further, as one of the principal objectives of supervision is the protection of depositors, it is essential to ensure that capital recognised in capital adequacy measures is readily available for those depositors. Accordingly, supervisors should test that individual banks are adequately capitalised on a stand-alone basis.

B. SECURITIES AND OTHER FINANCIAL SUBSIDIARIES

5. To the greatest extent possible, all banking and other relevant financial activities[3] (both regulated and unregulated) conducted within a group containing an internationally active bank will be captured through consolidation. Thus, majority-owned or-controlled banking entities, securities entities (where subject to broadly similar regulation or where securities activities are deemed banking activities) and other financial entities[4] should generally be fully consolidated.

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[1] A holding company that is a parent of a banking group may itself have a parent holding company. In some structures, this parent holding company may not be subject to this Accord because it is not considered a parent of a banking group.

[2] As an alternative to full sub-consolidation, the application of the Accord to the stand-alone bank (i.e. on a basis that does not consolidate assets and liabilities of subsidiaries) would achieve the same objective, providing the full book value of any investments in subsidiaries and significant minority-owned stakes is deducted from the bank's capital.

[3] In this section “financial activities” do not include insurance activities and “financial entities” do not include insurance entities.

[4] Examples of the types of activities that financial entities might be involved in include financial leasing, issuing credit cards, portfolio management, investment advisory, custodial and safekeeping services and other similar activities that are ancillary to the business of banking.

6. Supervisors will assess the appropriateness of recognising in consolidated capital the minority interests that arise from the consolidation of less than wholly owned banking, securities or other financial entities. Supervisors will adjust the amount of such minority interests that may be included in capital in the event the capital from such minority interests is not readily available to other group entities.

7. There may be instances where it is not feasible or desirable to consolidate certain securities or other regulated financial entities. This would be only in cases where such holdings are acquired through debt previously contracted and held on a temporary basis, are subject to different regulation, or where deconsolidation for regulatory capital purposes is otherwise required by law. In such cases, it is imperative for the bank supervisor to obtain sufficient information from supervisors responsible for such entities.

8. If any majority-owned securities and other financial subsidiaries are not consolidated for capital purposes, all equity and other regulatory capital investments in those entities attributable to the group will be deducted, and the assets and third-party capital investments in the subsidiary deconsolidated (i.e. removed). Supervisors will ensure that the entity that is deconsolidated and for which the capital investment is deducted meets regulatory capital requirements. Supervisors will monitor actions taken by the subsidiary to correct the capital shortfall and, if it is not corrected in a timely manner, the shortfall will also be deducted from the parent bank's capital.

C. INSURANCE SUBSIDIARIES

9. A bank that owns an insurance subsidiary bears the full entrepreneurial risks of the subsidiary and should recognise on a group-wide basis the risks included in the whole group. When measuring regulatory capital for banks, the Committee believes that at this stage it is, in principle, appropriate to deduct banks' investments in insurance subsidiaries. Alternative approaches that can be applied should, in any case, include a group-wide perspective for determining capital adequacy and avoid double counting of capital.

10. Due to issues of competitive equality, some G10 countries will retain their existing treatment as an exception to the approaches described above and introduce risk aggregation only on a consistent basis to that applied domestically by insurance supervisors for insurance firms with banking subsidiaries.[5] The Committee invites insurance supervisors to develop further and adopt approaches that comply with the above standards.

11. Banks should disclose the national regulatory approach used with respect to insurance entities in determining their reported capital positions.

12. The capital invested in a majority-owned or controlled insurance entity may exceed the amount of regulatory capital required for such entity (surplus capital). Supervisors may permit the recognition of such surplus capital in calculating a bank's capital adequacy, under limited circumstances.[6] National regulatory practices will determine the parameters and

[5] Where the existing treatment is retained, third party capital invested in the insurance subsidiary (i.e. minority interests) cannot be included in the bank's capital adequacy measurement.

[6] In a deduction approach, the amount deducted for all equity and other regulatory capital investments will be adjusted to reflect the amount of capital in those entities that is in surplus to regulatory requirements, i.e. the amount deducted would be the lesser of the investment or the regulatory capital requirement. If using an alternative group-wide approach, an equivalent treatment of surplus capital will be made.

criteria, such as legal transferability, for assessing the amount and availability of surplus capital that could be recognised in bank capital. Other examples of availability criteria include: restrictions on transferability due to regulatory constraints, to tax implications and to adverse impacts on external credit assessment institutions' ratings. Banks recognising surplus capital in insurance subsidiaries will publicly disclose the amount of such surplus capital recognised in their capital. Surplus capital in significant minority-owned insurance entities will not be recognised, as the bank would not be in a position to direct the transfer of the capital in an entity which it does not control.

13. Supervisors will ensure that majority-owned or controlled insurance subsidiaries, which are deconsolidated and for which capital investments are deducted or subject to an alternative group-wide approach, are themselves adequately capitalised to reduce the possibility of future potential losses to the bank. Supervisors will monitor actions taken by the subsidiary to correct the capital shortfall and, if it is not corrected in a timely manner, the shortfall will also be deducted from the parent bank's capital.

D. SIGNIFICANT MINORITY-OWNED EQUITY INVESTMENTS IN NON-INSURANCE FINANCIAL ENTITIES

14. Significant minority-owned equity investments in non-insurance 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. Alternatively, such investments might be, under certain conditions, consolidated on a pro rata basis. For example, pro rata consolidation may be appropriate for joint ventures or where the supervisor is satisfied that the parent is legally or de facto expected to support the entity on a proportionate basis only and the other significant shareholders have the means and the willingness to proportionately support it. The threshold above which minority-owned investments will be deemed significant and be thus either deducted or consolidated on a pro-rata basis is to be determined by national accounting and/or regulatory practices. As an example, the relevant threshold in the European Union is defined as equity interests of between 20% and 50%.

15. The Committee reaffirms the view set out in the 1988 Accord that reciprocal cross-holdings of bank capital artificially designed to inflate the capital position of banks will be deducted for capital adequacy purposes.

E. SIGNIFICANT INVESTMENTS IN COMMERCIAL ENTITIES

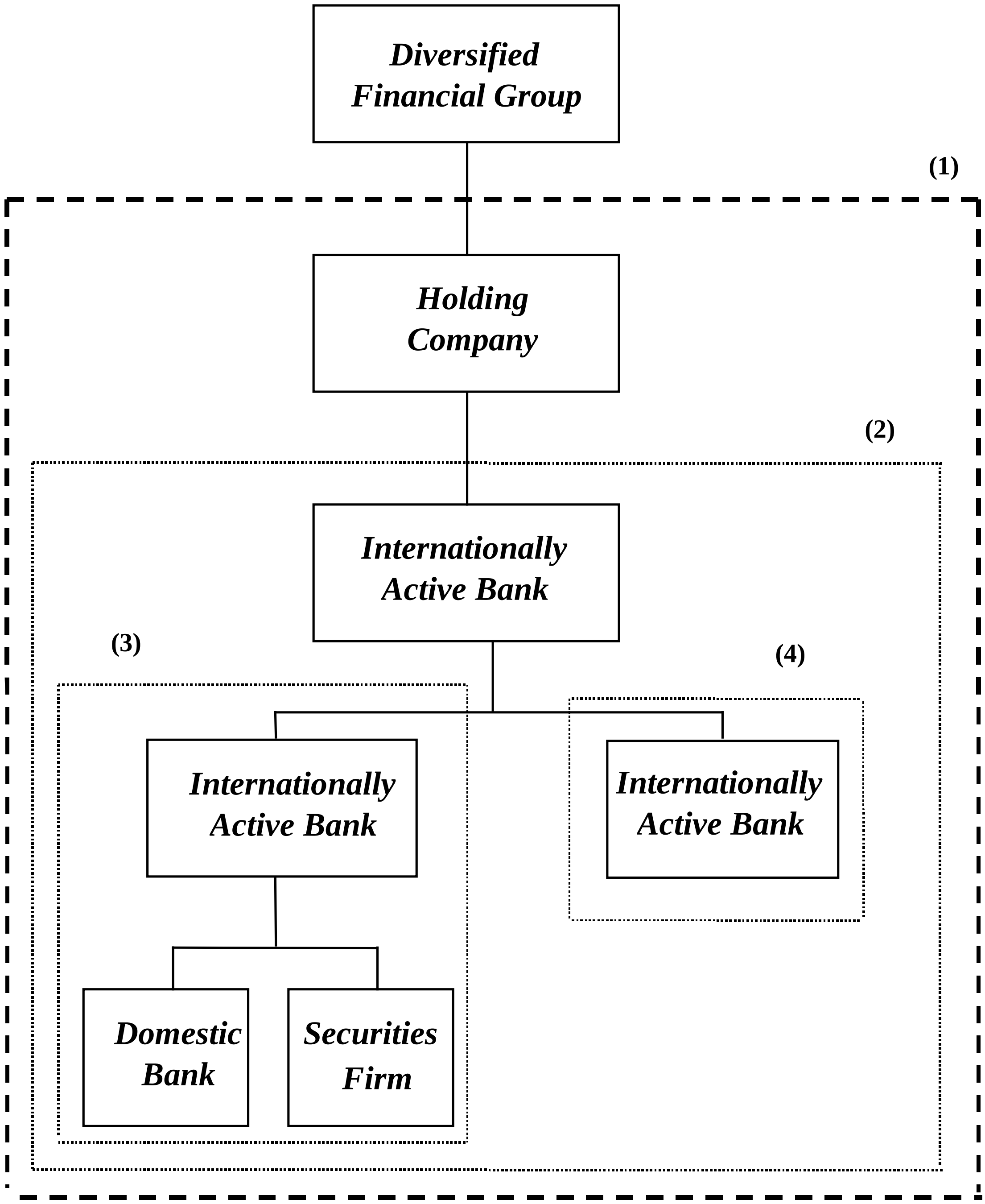
16. Significant minority and majority investments in commercial entities which exceed certain materiality levels will be deducted from banks' capital. Materiality levels will be determined by national accounting and/or regulatory practices. Materiality levels of 15% of the bank's capital for individual significant investments in commercial entities and 60% of the bank's capital for the aggregate of such investments, or stricter levels, will be applied.

17. Investments in significant minority- and majority-owned and controlled commercial entities below the materiality levels noted above will be risk weighted at no lower than 100% for banks using the standardised approach. An equivalent treatment will apply for banks using an IRB approach based on methodology the Committee is developing for equities.

F. DEDUCTION OF INVESTMENTS IN DECONSOLIDATED ENTITIES

18. Deduction of investments in deconsolidated entities will be 50% from Tier 1 and 50% from Tier 2.

ILLUSTRATION OF NEW SCOPE OF APPLICATION OF THE ACCORD



(1) Boundary of predominantly banking group. The Accord is to be applied at this level on a consolidated basis, i.e. up to holding company level (cf. Paragraph 2 of this section).

(2), (3) and **(4)**: the Accord is also to be applied at lower levels to all internationally active banks on a consolidated basis.

Part 2: The First Pillar – Minimum Capital Requirements

I. Calculation of minimum capital requirements

19. This section discusses the calculation of the total minimum capital requirements for credit, market and operational risk. The minimum capital requirements are composed of three fundamental elements; a definition of regulatory capital, risk weighted assets and the minimum ratio of capital to risk weighted assets.

20. In calculating the capital ratio, the denominator or total risk weighted assets will be determined by multiplying the capital requirements for market risks and operational risk by 12.5 (i.e. the reciprocal of the minimum capital ratio of 8%) and adding the resulting figures to the sum of risk-weighted assets compiled for credit risk. The ratio will be calculated in relation to the denominator, using regulatory capital as the numerator. The definition of eligible regulatory capital will remain the same as outlined in the 1988 Accord and clarified in the 27 October 1998 press release on “Instruments eligible for inclusion in Tier 1 capital”. The ratio must be no lower than 8% for total capital. Tier 2 capital will continue to be limited to 100% of Tier 1 capital.

II. Credit risk – the standardised approach

21. The Committee proposes to permit banks a choice between two broad methodologies for calculating their capital requirements for credit risk. One alternative will be to measure credit risk in a standardised manner, the alternative methodology, which is subject to the explicit approval of the bank's supervisor, would allow banks to use their internal ratings systems.

A. THE STANDARDISED APPROACH – GENERAL RULES

22. The following section sets out revisions to the 1988 Accord for risk-weighting banking book exposures. Exposures that are not explicitly addressed in this section will retain the current treatment. In determining the risk weights in the standardised approach, banks may use assessments[7] by external credit assessment institutions recognised as eligible for capital purposes by national supervisors in accordance with the criteria defined in section A-2.

1. INDIVIDUAL CLAIMS

(i) Claims on sovereigns

23. Claims on sovereigns and their central banks will be risk weighted as follows:

Credit Assessment	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to B-	Below B-	Unrated
Risk Weights	0%	20%	50%	100%	150%	100%

24. At national discretion, a lower risk weight may be applied to banks' exposures to the sovereign (or central bank) of incorporation denominated in domestic currency and funded[8] in that currency.[9] Where this discretion is exercised, other national supervisory authorities may also permit their banks to apply the same risk weight to domestic currency exposures to this sovereign (or central bank) funded in that currency.

25. For the purpose of risk weighting claims on sovereigns, supervisors may recognise the country risk scores assigned to sovereigns by Export Credit Agencies ("ECAs"). To qualify, an ECA must publish its risk scores and subscribe to the OECD 1999 methodology. Banks may choose to use the risk scores published by those ECAs that are recognised by

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7 The notations follow the methodology used by one institution, Standards & Poor's. The paper in large part uses Standard & Poor's credit ratings as an example only; it could equally use those of some other external credit assessment agencies. The ratings used throughout this document, therefore, do not express any preferences or determinations on external assessment institutions by the Committee.

8 This is to say that the bank would also have liabilities denominated in the domestic currency.

9 This lower risk weight may be extended to the risk weighting of collateral and guarantees. See sections B-2 (paragraph 102, footnote 22) and B-4 (paragraph 129).

their supervisor. The OECD 1999 methodology establishes seven risk score categories associated with minimum export insurance premiums. As detailed below, each ECA risk score will correspond to a specific risk weight category (see paragraphs 51-53 for a discussion of how to treat multiple assessments). Where a risk score is not associated with a minimum premium, it will not be recognised for risk weighting purposes.

ECA risk scores	1	2	3	4 to 6	7
Risk weights	0%	20%	50%	100%	150%

26. Claims on the Bank for International Settlements, the International Monetary Fund, the European Central Bank and the European Community will receive a 0% risk weight.

(ii) Claims on non-central government public sector entities (PSEs)

27. Claims on domestic PSEs will be treated as claims on banks of that country. Subject to national discretion, claims on domestic PSEs may also be treated as claims on the sovereigns in whose jurisdictions the PSEs are established.[10] Where this discretion is exercised, other national supervisors may allow their banks to risk weight claims on such PSEs in the same manner.

(iii) Claims on multilateral development banks (MDBs)

28. The risk weights applied to MDBs will be based on external credit assessments as set out under option 2 for treating bank claims explained below. A 0% risk weight will be applied to claims on highly rated MDBs that fulfil to the Committee's satisfaction the criteria provided below.[11] The Committee will continue to evaluate eligibility on a case-by-case basis. The eligibility criteria for MDBs risk weighted at 0% are:

- very high quality long-term issuer ratings, i.e. a majority of an MDB's external assessments must be AAA;
- shareholder structure comprised of a significant proportion of high quality sovereigns with long term issuer credit assessments of AA or better;
- strong shareholder support demonstrated by the amount of paid-in capital contributed by the shareholders; the amount of callable capital the MDBs have the right to call, if required, to repay their liabilities; and continued capital contributions and new pledges from sovereign shareholders;
- adequate level of capital and liquidity (a case-by-case approach is necessary in order to assess whether each institution's capital and liquidity are adequate); and

[10] An example showing how PSEs might be categorised is provided in the Supporting Document *The Standardised Approach to Credit Risk*.

[11] MDBs currently eligible for a 0% risk weight are: the World Bank Group comprised of the International Bank for Reconstruction and Development (IBRD) and the International Finance Corporation (IFC), the Asian Development Bank (ADB), the African Development Bank (AfDB), the European Bank for Reconstruction and Development (EBRD), the Inter-American Development Bank (IADB), the European Investment Bank (EIB), the Nordic Investment Bank (NIB), the Caribbean Development Bank (CDB), and the Council of Europe Development Bank (CEDB).

- strict statutory lending requirements and conservative financial policies, which would include among other conditions a structured approval process, internal creditworthiness and risk concentration limits (per country, sector, and individual exposure and credit category), large exposures approval by the board or a committee of the board, fixed repayment schedules, effective monitoring of use of proceeds, status review process, and rigorous assessment of risk and provisioning to loan loss reserve.

(iv) Claims on banks

29. There are two options for claims on banks. National supervisors will apply one option to all banks in their jurisdiction. No claim on an unrated bank may receive a risk weight less than that applied to its sovereign of incorporation.

30. Under the first option, all banks incorporated in a given country will be assigned a risk weight one category less favourable than that assigned to claims on the sovereign of incorporation. However, for claims to banks in sovereigns rated BB+ to B- and to banks in unrated countries the risk weight will be capped at 100%.

31. The second option bases the risk weighting on the external credit assessment of the bank itself. Under this option, a preferential risk weight that is one category more favourable than the risk weight shown in the table below may be applied to claims with an original maturity[12] of three months or less, subject to a floor of 20%. This treatment will be available to both rated and unrated bank claims, but not to banks risk weighted at 150%.

32. Both options are summarised in the tables below.

Option 1

Credit Assessment of Sovereigns	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to B-	Below B-	Unrated
Risk weights under Option 1	20%	50%	100%	100%	150%	100%

[12] Supervisors should ensure that claims with (contractual) original maturity under 3 months which are expected to be rolled over (i.e. where the effective maturity is longer than 3 months) do not qualify for this preferential treatment for capital adequacy purposes.

Option 2

Credit Assessment of Banks	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to B-	Below B-	Unrated
Risk weights under Option 2	20%	50%	50%	100%	150%	50%
Risk weights for short-term claims under Option 2	20%	20%	20%	50%	150%	20%

Note Short-term claims in Option 2 are defined as having an original maturity of three months or less. These tables do not reflect the potential preferential risk weights banks may be eligible to apply based on paragraphs 24 and 33.

33. When the national supervisor has chosen to apply the preferential treatment for claims on the sovereign as described in paragraph 24, it can also assign, under both options 1 and 2, a risk weight that is one category less favourable than that assigned to claims on the sovereign of incorporation, subject to a floor of 20%, to bank claims of an original maturity of 3 months or less denominated and funded in the domestic currency.

(v) Claims on securities firms

34. Claims on securities firms may be treated as claims on banks provided they are subject to supervisory and regulatory arrangements comparable to those under the New Basel Capital Accord (including, in particular, risk-based capital requirements[13]).

(vi) Claims on corporates

35. The table provided below illustrates the risk weighting of rated corporate claims, including claims on insurance companies. The standard risk weight for unrated claims on corporates will be 100%. No claim on an unrated corporate may be given a risk weight preferential to that assigned to its sovereign of incorporation.

Credit Assessment	AAA to AA-	A+ to A-	BBB+ to BB-	Below BB-	Unrated
Risk Weights	20%	50%	100%	150%	100%

36. In countries where corporates have higher default rates, supervisory authorities should increase the standard risk weight for unrated claims where they judge that a higher risk weight is warranted by the overall default experience in their jurisdiction. As part of the

[13] That is capital requirements that are comparable to those applied to banks in this revised Accord. Implicit in the meaning of the word “comparable” is that the securities firm (but not necessarily its parent) is subject to consolidated regulation and supervision with respect to any downstream affiliates.

supervisory review process, supervisors may also consider whether the credit quality of corporate claims held by individual banks should warrant a standard risk weight higher than 100%.

(vii) Claims secured by residential property

37. Lending fully secured by mortgages on residential property that is or will be occupied by the borrower, or that is rented, will be risk weighted at 50%.

(viii) Claims secured on commercial real estate

38. In view of the experience in numerous countries that commercial property lending has been a recurring cause of troubled assets in the banking industry over the past few decades, the Committee holds to the view that mortgages on commercial real estate do not, in principle, justify other than a 100% weighting of the loans secured.[14]

(ix) Higher-risk categories

39. In addition to the claims on sovereigns, PSEs, banks, and securities firms rated below B- and to the claims on corporates rated below BB-, the following will be risk weighted at 150%:

- securitisation tranches that are rated between BB+ and BB- as set out in paragraph 526.
- the unsecured portion of any asset that is past due for more than 90 days, net of specific provisions. For the purpose of defining the secured portion of the past due asset, eligible collateral and guarantees will be equivalent to those eligible for credit risk mitigation purposes (see section B of the standardised approach).[15]

40. National supervisors may decide to apply a 150% or higher risk weight reflecting the higher risks associated with some other assets, such as venture capital and private equity investments.

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[14] The Committee, however, recognises that, in exceptional circumstances for well-developed and long-established markets, mortgages on office and/or multi-purpose commercial premises and/or multi-tenanted commercial premises may have the potential to receive a preferential risk weight of 50 percent for the tranche of the loan that does not exceed the lower of 50 percent of the market value or 60 percent of the mortgage lending value of the property securing the loan. Any exposure beyond these limits will receive a 100% risk weight. This exceptional treatment will be subject to very strict conditions. In particular, two tests must be fulfilled, namely that (i) losses stemming from commercial real estate lending up to the lower of 50 percent of the market value or 60 percent of loan-to-value (LTV) based on mortgage-lending-value (MLV) must not exceed 0.3 percent of the outstanding loans in any given year; and that (ii) overall losses stemming from commercial real estate lending must not exceed 0.5 percent of the outstanding loans in any given year. This is, if either of these tests is not satisfied in a given year, the eligibility to use this treatment will cease and the original eligibility criteria would need to be satisfied again before it could be applied in the future. Countries applying such a treatment must publicly disclose that these and other additional conditions (that are available from the Basel Committee Secretariat) are met.

[15] There will be a transitional period of three years during which a wider range of collateral may be recognised, subject to national discretion.

(x) Other assets

41. The treatment of assets related to asset securitisation is stipulated separately in section IV. The standard risk weight for all other assets will be 100%.

(xi) Off-balance sheet items

42. The current framework will be retained for calculating the credit exposure of off-balance-sheet transactions under the standardised approach, with a few exceptions. The 50% ceiling on counterparty risk weightings of OTC derivative transactions will no longer apply.

43. The credit conversion factor for business commitments with an original maturity up to one year will be 20%. As an exception, a 0% conversion factor will be applied to commitments that are unconditionally cancellable, or that effectively provide for automatic cancellation, due to deterioration in a borrower's creditworthiness, at any time by the bank without prior notice.[16] The credit conversion factor for commitments with an original maturity over one year will be 50%.

44. A credit conversion factor of 100% will be applied to the lending of banks' securities or the posting of securities as collateral by banks, including instances where these arise out of repo-style transactions (i.e. repurchase/reverse repurchase and securities lending/securities borrowing transactions). See section B. 2. for the calculation of risk weighted assets where the credit converted exposure is secured by eligible collateral. When banks, acting as agents, arrange a securities lending transaction between a customer and a third party and provide a guarantee to the customer that the third party will perform on its obligations, then the risk to the banks is the same as if the banks had entered into a repo-style transaction as principal. In such circumstances, banks will be required to calculate capital requirements as if it were indeed a party to the transaction (see section B).

2. EXTERNAL CREDIT ASSESSMENTS

(i) The recognition process

45. National supervisors are responsible for determining whether an external credit assessment institution (ECAI) meets the criteria listed in the paragraph below. Certain ECAIs may be recognised on a limited basis, e.g. by type of claims or by jurisdiction. The supervisory process for recognising ECAIs should be made public to avoid unnecessary barriers to entry.

(ii) Eligibility criteria

46. An ECAI must satisfy each of the following six criteria.

[16] In certain countries, retail commitments are considered unconditionally cancellable if the terms permit the bank to cancel them to the full extent allowable under consumer protection and related legislation.

- ***Objectivity***: The methodology for assigning credit assessments must be rigorous, systematic, and subject to some form of validation based on historical experience. Moreover, assessments must be subject to ongoing review and responsive to changes in financial condition. Before being recognised by supervisors, an assessment methodology for each market segment, including rigorous backtesting, must have been established for at least one year and preferably three.
- ***Independence***: An ECAI should be independent and should not be subject to political or economic pressures that may influence the rating. The assessment process should be as free as possible from any constraints that could arise in situations where the composition of the board of directors or the shareholder structure of the assessment institution may be seen as creating a conflict of interest.
- ***International access/Transparency***: The individual assessments should be available to both domestic and foreign institutions with legitimate interests and at equivalent terms. In addition, the general methodology used by the ECAI should be publicly available.
- ***Disclosure***: An ECAI should disclose the following information: its assessment methodologies, including the definition of default, the time horizon and the meaning of each rating; the actual default rates experienced in each assessment category; and the transitions of the assessments, e.g. the likelihood of AAA ratings becoming AA over time.
- ***Resources***: An ECAI should have sufficient resources to carry out high quality credit assessments. These resources should allow for substantial ongoing contact with senior and operational levels within the entities assessed in order to add value to the credit assessments. Such assessments should be based on methodologies combining qualitative and quantitative approaches.
- ***Credibility***: To some extent, credibility is derived from the criteria above. In addition, the reliance on an ECAI's external credit assessments by independent parties (investors, insurers, trading partners) is evidence of the credibility of the assessments of an ECAI. The credibility of an ECAI is also underpinned by the existence of internal procedures to prevent the misuse of confidential information. In order to be eligible for recognition, any ECAI does not have to assess firms in more than one country.

3. IMPLEMENTATION CONSIDERATIONS

(i) The mapping process

47. Supervisors will be responsible for slotting ECAIs' assessments into the standardised risk weighting framework, i.e. deciding which assessment categories correspond to which risk weights. The mapping process should be objective and should result in a risk weight assignment consistent with that of the level of credit risk reflected in the tables above and should cover the full spectrum of risk weights.

48. The Committee will continue its work on mapping ECAIs' assessment categories into the risk-weighting framework during the consultative period, for example, basing the slotting on experienced default probabilities.

49. Banks must use the chosen ECAIs and their ratings consistently for each type of claim, for both risk weighting and risk management purposes. In other words, banks will not be allowed to "cherry-pick" the assessments provided by different ECAIs.

50. Banks must disclose on at least an annual basis the credit assessment institutions that they use for the risk weighting of their assets by type of claims and the mapping process determined by supervisors as well as the percentage of their risk weighted assets that are based on the assessments of each eligible institution.

(ii) Multiple assessments

51. If there is only one assessment by an ECAI chosen by a bank for a particular claim, that assessment should be used to determine the risk weight of the claim.

52. If there are two assessments by ECAIs chosen by a bank corresponding to different risk weights, the higher risk weight will be applied.

53. If there are multiple assessments (more than two), the two assessments corresponding to the lowest risk weight should be referred to, and if they are different, the higher risk weight should be used. If the best two assessments are the same, that assessment should be used to determine the risk weight.

(iii) Issuer versus issues assessment

54. Where a bank invests in a particular issue that has an issue-specific assessment, the risk weight of the claim will be based on this assessment. Where the bank's claim is not an investment in a specific assessed issue, the following general principles apply.

- In circumstances where the borrower has a specific assessment for an issued debt – but the bank's claim is not an investment in this particular debt - a **high quality credit assessment** (one which maps into a risk weight lower than that which applies to an unrated claim) on that specific debt may only be applied to the bank's unassessed claim if this claim ranks *pari passu* or senior to the claim with an assessment in all respects. If not, the credit assessment cannot be used and the unassessed claim will receive the risk weight for unrated claims.
- In circumstances where the borrower has an issuer assessment, this typically applies to senior unsecured claims on that issuer. Consequently, only senior claims on that issuer will benefit from a high quality issuer assessment. Other unassessed claims of a highly assessed issuer will be treated as unrated. If either the issuer or a single issue has a **low quality assessment** (mapping into a risk weight equal to or higher than that which applies to unrated claims), an unassessed claim on the same counterparty will be attributed the same risk weight applicable to the low quality assessment.

55. In order to avoid any double counting of credit enhancement factors, no supervisory recognition of credit risk mitigation techniques will be taken into account if the credit enhancement is already reflected in the issue specific rating (see paragraph 63).

(iv) Short term/long term assessments

56. Short-term assessments can only be used when the claim is short-term and a long-term assessment is not available. If there is a long-term issue or issuer assessment, that assessment should be used not only for long-term claims but also for short-term claims, regardless of the availability of a short-term assessment, provided that the short-term claim

ranks *pari passu* (or better). If the two claims are not *pari passu*, then the short-term claim should be treated as unrated. The Committee intends to carry out further work to consider the feasibility and desirability of using short-term assessments. In no event can a short-term rating be used to support a preferential risk weight for an unrated long-term claim.

57. When a short-term assessment is to be used, the institution making the assessment needs to meet all of the eligibility criteria for recognising ECAIs as discussed in paragraph 46 in terms of its short-term assessment.

58. If short-term claims receive a 150% risk weight, an unrated unsecured long-term claim should also receive a 150% risk weight, unless the bank uses recognised credit risk mitigation techniques on the long-term claim.

(v) Level of application of the assessment

59. External assessments for one entity within a corporate group should not be used to risk weight other entities within the same group.

(vi) Unsolicited ratings

60. As a general rule, banks should use *solicited* ratings from eligible ECAIs. National supervisory authorities may, however, allow banks to use *unsolicited* ratings in the same way as solicited ratings. However, there may be the potential for ECAIs to use unsolicited ratings to put pressure on entities to obtain solicited ratings. Such behaviour, when identified, should cause supervisors to consider whether to continue recognising such ECAIs as eligible for capital adequacy purposes.

B. CREDIT RISK MITIGATION IN THE STANDARDISED APPROACH

1. SCOPE

61. Credit risk mitigation relates to the reduction of credit risks by, for example, taking collateral, obtaining credit derivatives or guarantees, or taking an offsetting position subject to a netting agreement. The revised approach to credit risk mitigation allows a wider range of credit risk mitigants to be recognised for regulatory capital purposes than is currently the case.

62. The framework set out in this section is applicable to the banking book exposures in the standardised approach. The framework for credit risk mitigation in the foundation internal ratings-based approach, set out in section III, is very similar. For the treatment of credit risk mitigation in the advanced IRB approach, see paragraphs 188-193 and 222-224. For the treatment of securitisations see section IV.

63. The effects of credit risk mitigation will not be double counted. Therefore, no additional supervisory recognition of credit risk mitigation for regulatory capital purposes will be granted on claims for which an issue-specific rating is used that already reflects that credit risk mitigation.

2. COLLATERAL

64. This section covers collateralised transactions. A collateralised transaction is one in which:

- banks have a credit exposure or potential credit exposure to another party by virtue of cash or financial instruments lent or posted as collateral, or an OTC derivatives contract; and
- the exposure or potential exposure is hedged in whole or in part by collateral posted by the counterparty.

65. Where a bank, acting as agent, arranges a repo-style transaction (i.e. repurchase/reverse repurchase and securities lending/borrowing transactions) between a customer and a third party and provides a guarantee to the customer that the third party will perform on its obligations, then the risk to the bank is the same as if the bank had entered into the transaction as principal. In such circumstances, banks will be required to calculate capital requirements as if they were themselves a party to the transaction.

66. As a general rule, no secured claim should receive a higher capital requirement than an otherwise identical claim on which there is no collateral.

(i) Minimum conditions

67. Before capital relief will be granted to any form of collateral, the standards set out in this section must be met.

(a) Legal certainty

68. Collateral is effective only if the legal mechanism by which collateral is given is robust and ensures that the lender has clear rights over the collateral, and may liquidate or retain it in the event of the default, insolvency or bankruptcy (or otherwise-defined credit event set out in the transaction documentation) of the obligor and where applicable the custodian holding the collateral.

69. Banks must take all steps necessary to fulfil local contractual requirements in respect of the enforceability of security interest, e.g. by registering a security interest with a registrar. Where the collateral is held by a custodian, banks must seek to ensure that the custodian ensures adequate segregation of the collateral instruments and the custodian's own assets.

70. Banks must obtain legal opinions confirming the enforceability of the collateral arrangements in all relevant jurisdictions. Legal opinions should be updated at appropriate intervals (e.g. annually).

71. The collateral arrangements must be properly documented, with a clear and robust procedure for the timely liquidation of collateral. Banks procedures should ensure that any legal conditions required for declaring the default of the customer and liquidating the collateral are observed.

(b) Low correlation with exposure

72. In order for collateral to provide protection, the credit quality of the obligor and the value of the collateral must not have a material positive correlation. For example, securities issued by the collateral provider - or by any related group entity – would provide little protection and so would be ineligible.

(c) Robust risk management process

73. While collateral reduces credit risk, it simultaneously increases other risks to which banks are exposed, such as legal, operational, liquidity and market risks. Therefore, it is imperative that banks employ robust procedures and processes to control these risks, including strategy; consideration of the underlying credit; valuation; policies and procedures; systems; control of roll-off risks; and management of concentration risk arising from the bank's use of collateral and its interaction with the bank's overall credit risk profile.

74. In addition, the bank must satisfy certain disclosure requirements, as set out in paragraphs 655-656 in the Pillar 3 section.

(ii) The methodologies

75. There are two approaches to the treatment of collateral: a comprehensive approach and a simple approach. Banks will be required to operate under only one of the two alternatives. Partial collateralisation will be recognised.

(a) Eligible collateral

76. The following collateral instruments are eligible for recognition in both the simple approach and in the comprehensive approach:

- Cash on deposit with the lending bank;[17]
- Securities rated BB- and above issued by sovereigns and public-sector entities (PSEs) that are treated as sovereigns by the national supervisor;
- Bank,[18] securities firm and corporate securities rated BBB- and above;
- Equities that are included in a main index; and
- Gold.

77. In addition to the above, equities not included in a main index but traded on a recognised exchange are eligible for recognition in the comprehensive approach.

78. Bonds issued by banks which are not assessed by a recognised external credit assessment institution may be treated equivalently to those assessed A/BBB only if they fulfil each of the following criteria:

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17 Where a bank issues credit-linked notes against exposures in its banking book, the exposures will be treated as being collateralised by cash.

18 Including PSEs which are not treated as sovereigns by the national supervisor.

(a) the bonds are listed on a recognised exchange;

(b) the bonds qualify as senior debt;

(c) no other issue by the issuing bank is rated below BBB;

(d) the lending bank has no information to suggest that the issue justifies a rating below BBB; and

(e) the supervisor is sufficiently confident about the market liquidity of the instrument.

79. Certain Undertakings for Collective Investment in Transferable Securities (UCITS) and mutual fund units are also eligible. The units must have a daily public price quote, and the UCITS/mutual funds must be limited to investing in other instruments that are eligible for recognition in the approach (simple or comprehensive) being used.

(b) The comprehensive approach

80. In the comprehensive approach to collateral, "haircuts" denoted H will be applied to the market value of collateral in order to protect against price volatility and a weight w will be applied to the collateralised portion of the exposure after adjusting for the haircut.

81. A capital requirement will be applied to banks on either side of the collateralised transaction: for example, both repos and reverse repos will be subject to capital requirements. Likewise, both sides of the securities lending and borrowing transactions will be subject to explicit capital charges, as will the posting of securities in connection with a derivative exposure or other borrowing. Where banks' exposures are secured by collateral (including where the bank borrows securities), the value of that collateral will be reduced by the haircut appropriate to the collateral instrument. Where banks' exposures take the form of securities posted or lent, the value of the collateral they receive (which may be either cash or securities) will be reduced by the haircut appropriate to the securities that they post.

82. Where collateral is denominated in a currency that differs from that in which the underlying exposure is denominated, i.e. there is a currency mismatch, a haircut reflecting the currency volatility should be added to the haircut appropriate to the collateral (see paragraph 88 to 100 for the calibration of the values of the haircuts).

83. The value of the collateral adjusted for the haircut(s) is known as the "adjusted value".

84. In addition to the haircuts, a "floor" factor denoted w is applied to the portion of the exposure secured by the adjusted value of collateral (see paragraph 101 for the value of w).

85. For a collateralised exposure, the risk-weighted assets are calculated as follows, where

r^* is the risk weight of the position taking into account the risk reduction from the collateral,
r is the risk weight of the uncollateralised exposure,
E is the value of the uncollateralised exposure (i.e. cash lent or securities lent or posted),
H_E is a haircut appropriate to the exposure (E),
C is the current value of the collateral received,
H_C is a haircut appropriate for the collateral received,
H_{FX} is a haircut for currency mismatch,
C_A is the adjusted value of the collateral, and
w is the floor factor applied to the secured portion of the transaction.

Then the adjusted value of the collateral is

$$C_A = \frac{C}{1 + H_E + H_C + H_{FX}}$$

If the value of the exposure exceeds the adjusted value of the collateral, i.e. $E > C_A$, then the risk weighted assets are

$$r^* \text{ x } E = r \text{ x } [E – (1\text{-}w) \text{ x } C_A]$$

If the value of the exposure is no more than the adjusted value of the collateral, i.e. $E \leq C_A$, then the risk weighted assets are subject to a floor related to the borrower's creditworthiness:

$$r^* \text{ x } E = r \text{ x } w \text{ x } E$$

Collateral haircuts

86. Haircuts are designed to reflect the volatility of the exposure (H_E), the volatility of collateral received (H_C) and any currency volatility (H_{FX}). Haircuts may be calculated in two ways: a standard approach and an own estimates approach. Under the standard haircut approach, each item of eligible collateral receives a standard supervisory haircut. Alternatively, supervisors may permit banks satisfying certain minimum standards to use their own internal estimates of collateral volatilities.

87. Banks may choose to use standard or internal haircuts independently of the choice it has made between the standardised approach and the foundation internal rating based approach to credit risk. However, if banks seek to use their own estimate haircuts, they must do so for the full range of instrument types for which they would be eligible to use own estimates.

Standard supervisory haircuts

88. These are the haircuts to be applied in the standardised supervisory haircuts approach (assuming daily mark-to-market and remargining), expressed as percentages:

Issue rating for debt securities	Residual Maturity	Sovereigns[19]	Banks/Corporates[20]
AAA/AA	≤ 1 year	0.5	1
	>1 year, ≤ 5 years	2	4
	> 5 years	4	8
A/BBB	≤ 1 year	1	2
	>1 year, ≤ 5 years	3	6
	> 5 years	6	12
BB	≤ 1 year	20	
	>1 year, ≤ 5 years	20	
	> 5 years	20	
Main index equities		20	
Other equities listed on a recognised exchange		30	
Cash		0	
Gold		15	
Surcharge for foreign exchange risk		8	

89. The haircut to be applied to eligible UCITS/units in mutual funds is the highest haircut that would be applicable to any of the assets in which the fund has the right to invest.

90. Unrated bank bonds satisfying the eligibility criteria in paragraph 78 will be treated as bank/corporate bonds rated A/BBB.

91. Where collateral is denominated in a currency that differs from that in which the underlying exposure is denominated, i.e. there is a currency mismatch, then 8 percentage points should be added to the collateral haircut, scaled up from 10 days as necessary in the manner specified in the section on holding periods below.

Own estimates for haircuts

92. Supervisors may permit banks to calculate *H* using their own internal estimates of market price volatility and foreign exchange volatility. Permission to do so will be conditional on the satisfaction of minimum qualitative and quantitative standards and will be limited to those banks that have received supervisory recognition for an internal market risk model

[19] Includes PSEs which are treated as sovereigns by the national supervisor.

[20] Includes PSEs which are **not** treated as sovereigns by the national supervisor.

under the 1996 Market Risk Amendment.[21] Banks will be required to calculate a volatility estimate for each category of security.

93. The quantitative standards for use of own estimates for haircuts will be equivalent to those applied to the use of the internal models approach in the 1996 Market Risk Amendment, key parameters of which are the 10-business-day holding period and the 99% confidence interval. Foreign exchange risk will also be calculated in a similar fashion.

94. Banks must take into account the illiquidity of lower-quality assets. The holding period should be adjusted upwards in cases where there is doubt over the liquidity of the collateral. They should also identify where historical data may understate potential volatility, e.g. a pegged currency. Such cases must be dealt with through a stress scenario.

95. Banks must estimate volatility of the collateral instrument or foreign exchange mismatch individually: estimated volatilities must not take into account the correlations between unsecured exposure, collateral and exchange rates (see section 5 for the approach to currency mismatches). Where the collateral is a basket of assets, the haircut on the basket will be $H = \sum_i a_i H_i$, where a_i is the weight of the asset in the basket and H_i the haircut applicable to that asset.

Holding periods

96. The framework for collateral haircuts distinguishes between “capital-market-driven transactions” (i.e. repos/reverse repos, securities lending/borrowing, derivatives transactions and margin lending) and secured lending. In capital-market-driven transactions, the documentation contains remargining clauses; in secured lending transactions, it generally does not.

Capital market driven transactions

97. A ten-business-day holding period was used as the base case for calibrating the standard collateral haircuts set out in paragraph 88 above, if daily marking to market and remargining is conducted. A ten-business-day holding period is also the benchmark for haircuts in the internal estimates approach. Here, a haircut based on a ten-business-day holding period is denoted H_{10}.

98. If the frequency of remargining is less than daily, larger haircuts are required. These will be calculated by reference to the benchmark haircuts, using this “square root of time” formula:

$$H = H_{10} \sqrt{\frac{N_{RM} + 9}{10}}$$

where:

H = haircut

H_{10} = 10-business-day haircut for instrument

N_{RM} = actual number of days between remargining.

[21] *Amendment to the Capital Accord to Incorporate Market Risk,* Basel Committee on Banking Supervision, (January 1996).

Secured lending transactions

99. In order for banks to receive recognition for the collateral, the collateral must be revalued within a maximum period of six months. If the collateral is marked to market daily, then the holding period will be *twenty business days*.

100. Where the collateral is marked to market less frequently than daily, the haircuts will be increased according to the following formula:

$$H = H_{10} \sqrt{\frac{N_{RV} + 19}{10}}$$

where:

H = haircut

H_{10} = 10-business day haircut for instrument

N_{RV} = actual number of days between revaluations.

W: remaining risks

101. For collateralised transactions, *w* is 0.15.

Special treatment for government repo-style transactions

102. In certain government securities repo-style transactions, (i.e. repo/reverse repo and securities lending/securities borrowing transactions) banks will be permitted to apply a zero *w*. The following conditions must be fulfilled:

(a) the transaction is a repo-style transaction;

(b) both the exposure and the collateral are cash or a sovereign or PSE security qualifying for a 0% risk weight in the standardised approach;[22]

(c) both the exposure and the collateral are denominated in the currency of the sovereign or PSE security concerned;

(d) either the transaction is overnight or both the exposure and the collateral are marked-to-market daily and are subject to daily remargining;

(e) following a counterparty's failure to remargin, the time between the last mark to market before the failure to remargin and the liquidation of the collateral is no more than four business days;

(f) the transaction is settled across a settlement system proven for that type of transaction in the jurisdiction or currency area in which the securities are issued;

(g) the documentation covering the agreement is standard domestic market documentation for repo-style transactions in the securities concerned;

(h) the transaction is governed by documentation specifying that if the counterparty fails to satisfy an obligation to deliver cash or securities or to deliver margin or otherwise defaults, then the transaction is immediately terminable; and

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[22] Note that where a supervisor has designated domestic-currency claims on its sovereign or central bank to be eligible for a 0% risk weight in the standardised approach, such claims will satisfy this condition.

(i) notwithstanding the counterparty's insolvency or bankruptcy, the bank has the unfettered, legally enforceable right to immediately seize and liquidate the collateral for its benefit.

Carve-out from the comprehensive approach

103. For transactions where conditions for a zero *w* set out in the previous paragraph are satisfied, and in addition the counterparty is a *core market participant*, supervisors may choose not to apply the haircuts specified in the comprehensive approach and may instead apply a zero *H*.

104. *Core market participants* may include, at the discretion of the national supervisor, the following entities:

- sovereigns, central banks and PSEs;
- banks and securities firms;
- other financial companies (including insurance companies) eligible for a 20% risk weight;
- regulated mutual funds that are subject to capital or leverage requirements;
- regulated pension funds; and
- recognised clearing organisations.

105. Where a supervisor applies a specific carve-out to repo-style transactions in securities issued by its domestic government, then other supervisors may choose to allow banks incorporated in their jurisdiction to adopt the same approach to the same transactions.

(c) The simple approach

Minimum conditions

106. For collateral to be recognised in the simple approach, the collateral must be pledged for the life of the exposure and it must be marked to market and revalued with a minimum frequency of six months.

Risk Weights

107. In the simple approach, those portions of claims collateralised by the market value of recognised collateral receive the risk weight applicable to the collateral instrument. The risk weight on the collateralised portion will be subject to a floor of 20% except under the conditions specified in the next two sub-sections. The remainder of the claim should be assigned to the risk weight appropriate to the counterparty or borrower. A capital requirement will be applied to banks on either side of the collateralised transaction: for example, both repos and reverse repos will be subject to capital requirements.

Transactions subject to daily mark-to-market and daily remargining

108. Collateralised claims are eligible for a risk weight of less than 20% only if they meet the following conditions specified in this paragraph. They can receive a risk weight of 0% or 10% depending on whether they additionally meet the conditions in either paragraph 109 or 110:

(a) both the exposure and the collateral are denominated in the same currency;

(b) either the transaction is overnight or both the exposure and the collateral are marked-to-market daily and are subject to daily remargining;

(c) the transaction is governed by documentation specifying that if the counterparty fails to satisfy an obligation to deliver cash or securities or to deliver margin or otherwise defaults, then the transaction is immediately terminable;

(d) notwithstanding the counterparty's insolvency or bankruptcy, the bank has the unfettered, legally enforceable right to immediately seize and liquidate the collateral for its benefit; and

(e) following a counterparty's failure to remargin, the time between the last mark to market before the failure to remargin and the liquidation of the collateral is no more than ten business days.

109. The risk weight on the collateralised transaction is 0% where the conditions in the paragraph above are satisfied and:

(a) the transaction is a repo-style transaction (i.e. repo/reverse repo or securities lending/securities borrowing transaction);

(b) both the exposure and the collateral are cash or sovereign or PSE securities qualifying for a 0% risk weight in the standardised approach;[23]

(c) following a counterparty's failure to remargin, the time between the last mark to market before the failure to remargin and the liquidation of the collateral is no more than four business days;

(d) the transaction is settled across a settlement system proven for that type of transaction in the jurisdiction or currency area in which the securities are issued; and

(e) the documentation covering the agreement is standard domestic market documentation for repo-style transactions in the securities concerned.

110. The portion of a claim secured by the market value of the collateral may be assigned a 10% risk weight where the conditions in paragraph 108 are satisfied and either:

(a) the bank's claim and the collateral are both in the form of cash (a claim in the form of a loan of cash, a guarantee or commitment to pay cash, or a derivative exposure treated as a cash position) or sovereign/PSE securities eligible for a 0% risk weight; or

(b) the bank's claim on an unsecured basis would have a risk weight of 20%, *and* one side of the transaction (the bank's claim or the collateral) is cash or securities eligible for a 0% risk weight, and the other side is eligible collateral as set out in the previous section.

Other transactions

111. The 20% floor for the risk weight on a collateralised transaction will not be applied and a 0% risk weight can be provided where the exposure and the collateral are denominated in the same currency, and either:

(a) the collateral is cash on deposit and is securing a loan in the same currency; or

[23] Note that where a supervisor has designated domestic-currency claims on its sovereign or central bank to be eligible for a 0% risk weight in the standardised approach, such claims will satisfy this condition.

(b) the collateral is in the form of sovereign/PSE securities eligible for a 0% risk weight, and its market value has been discounted by 30%.

3. ON-BALANCE SHEET NETTING

112. On-balance sheet netting agreements of loans and deposits of banks to or from any other counterparty will be permitted subject to the following conditions:

(a) the bank has a well-founded legal basis for concluding the netting or offsetting and the agreement is enforceable in each relevant jurisdiction including in insolvency proceedings;

(b) the bank is able at any time to determine those assets and liabilities with the same counterparty that are subject to the netting agreement;

(c) the bank monitors and controls its roll-off risks; and

(d) the bank monitors and controls the relevant exposures on a net basis.

113. In addition, the bank must satisfy certain disclosure requirements, as set out in paragraphs 655-656 in the Pillar 3 section.

114. Where banks have a number of loans and deposits with the same counterparty, the portfolio of loans and deposits must be decomposed and netted on an individual basis.

115. When a currency mismatch exists, a haircut H_{FX} should be applied to the liability side, as described in the collateral section. When revaluation is less frequent than daily, the standard 8% haircut will be scaled up using the square root of time rule set out in the section on collateral. When a maturity mismatch exists, the treatment on maturity mismatch under section 5 below will be applied.

116. Calculation of the capital charge will be based on the equation in paragraph 85. The *w* factor will be zero for on-balance-sheet netting.

4. GUARANTEES AND CREDIT DERIVATIVES

(i) Minimum conditions

117. Before granting capital relief to any form of guarantee or credit derivative, the supervisor must be satisfied that the bank fulfils minimum conditions relating to risk management processes, and that the guarantee or credit derivative is direct, explicit, irrevocable and unconditional. These conditions are explained below. Further separate operational requirements for guarantees and credit derivatives are set out below.

118. In addition, the bank must satisfy certain disclosure requirements, as set out in paragraphs 655-656 in the Pillar 3 section.

119. As a general rule, no claim on which credit protection has been purchased should receive a higher capital requirement than an otherwise identical claim on which there is no credit protection.

(a) Requirements common to guarantees and credit derivatives

Robust risk management process

120. While guarantees and credit derivatives reduce credit risk, they simultaneously increase other risks to which banks are exposed, such as legal risks. Therefore, it is imperative that banks employ robust procedures and processes to control these risks. These procedures and processes include strategy, consideration of the underlying credit, systems and management of concentration risk arising from the bank's use of guarantees/credit derivatives and its interaction with the bank's overall credit risk profile.

Direct

121. A guarantee/credit derivative must represent a direct claim on the protection provider.

Explicit

122. The credit protection must be linked to specific exposures, so that the extent of the cover is clearly defined and incontrovertible.

Irrevocable

123. Other than a protection purchaser's non-payment of money due in respect of the credit protection contract, there must be no clause in the contract that would allow the protection provider unilaterally to cancel the credit cover.[24]

Unconditional

124. There should be no clause in the protection contract that could prevent the protection provider from being obliged to pay out in a timely manner in the event that the original obligor fails to make the payment(s) due.

(b) Operational requirements for guarantees

125. In order for a guarantee to be recognised, the following conditions must be satisfied:

(a) on the qualifying default/non-payment of the obligor, the lender may in a timely manner pursue the guarantor for monies outstanding under the loan, rather than having to continue to pursue the obligor. The act of the guarantor making a payment under the guarantee grants the guarantor the right to pursue the obligor for monies outstanding under the loan;

(b) the guarantee is an explicitly documented obligation assumed by the guarantor;

(c) the guarantor covers all types of payments the underlying obligor is expected to make under the loan/exposure, notional amount etc; and

(d) the guarantee must be legally enforceable in all relevant jurisdictions.

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[24] Note that the irrevocability condition does not require that the credit protection and the exposure be maturity matched; rather that the maturity agreed *ex ante* may not be reduced *ex post* by the protection provider.

(c) Operational requirements for credit derivatives

126. The following list comprises the criteria to which credit derivatives must conform in order to receive regulatory capital relief.

(a) The credit events specified by the contracting parties must at a minimum include:

- failure to pay the amounts due according to the reference asset specified in the contract;
- a reduction in the rate or amount of interest payable or the amount of scheduled interest accruals;
- a reduction in the amount of principal or premium payable at maturity or at scheduled redemption dates;
- a change in the ranking in the priority of payment of any obligation, causing the subordination of such obligation.

(b) Contracts allowing for cash settlement are recognised for capital purposes insofar as a robust valuation process is in place in order to estimate loss reliably. There must be a clearly specified period for obtaining post-credit-event valuations of the reference asset, typically no more than 30 days;

(c) The credit protection must be legally enforceable in all relevant jurisdictions;

(d) Default events must be triggered by any material event, e.g. failure to make payment over a certain period, or filing for bankruptcy or protection from creditors;

(e) The grace period in the credit derivative contract must not be longer than the grace period agreed upon under the loan agreement;

(f) The protection purchaser must have the right/ability to transfer the underlying exposure to the protection provider, if required for settlement;

(g) The identity of the parties responsible for determining whether a credit event has occurred must be clearly defined. This determination must not be the sole responsibility of the protection seller. The protection buyer must have the right/ability to inform the protection provider of the occurrence of a credit event;

(h) Where there is an asset mismatch between the exposure and the reference asset then:

- the reference and underlying assets must be issued by the same obligor (i.e. the same legal entity); and
- the reference asset must rank *pari passu* or more junior than the underlying asset, and legally effective cross-reference clauses (e.g. cross-default or cross-acceleration clauses) must apply.

127. Only credit default swaps and total return swaps that provide credit protection equivalent to guarantees will be eligible for recognition. The following exception applies. Where a bank buys credit protection through a total return swap and records the net payments received on the swap as net income, but does not record offsetting deterioration in the value of the asset that is protected (either through reductions in fair value or by an addition to reserves), the credit protection will not be recognised.

128. Other types of credit derivatives will not be eligible for recognition at this time.[25]

(ii) Range of eligible guarantors/protection providers

129. Credit protection given by the following will be recognised:

- sovereign entities, PSEs and banks with a lower risk weight than the obligor;
- corporates (including insurance companies) including parental guarantees rated A or better.

(iii) Risk weights

130. The protected portion is assigned a risk weight that is a weighted average of the obligor's risk weight and the protection provider's risk weight. The uncovered portion of the exposure is assigned the risk weight of the underlying obligor.

131. Materiality thresholds on payments below which no payment will be made in the event of loss are equivalent to retained first loss positions and must be deducted in full from the capital of the bank purchasing the credit protection.

132. The risk weight applicable to a fully-guaranteed exposure – i.e. where the nominal amount of the credit protection equals that of the exposure – is:

$$r^* = w \times r + (1 - w) \times g$$

where r^* is the effective risk weight of the position taking into account the risk reduction from the guarantee/credit derivative

r is the risk weight of the obligor

w is the weight applied to the underlying exposure

g is the risk weight of the guarantor/protection provider.

(a) Proportional cover

133. This case applies to credit protection where the amount guaranteed is less than the amount of the exposure, and the secured and unsecured portions are of equal seniority, i.e. the bank and the guarantor share losses on a pro-rata basis. Proportional cover will be afforded proportional regulatory capital relief: i.e. the protected portion of the exposure will receive the treatment applicable to eligible guarantees/credit derivatives, with the remainder treated as unsecured.

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[25] Credit linked notes issued by the bank will be treated as cash collateralised transactions (see footnote 17).

134. For a credit-protected exposure, the risk-weighted assets will be:

$$E \times r^* = (E - G_A) \times r + G_A \times [w \times r + (1 - w) \times g]$$

where

E is the value of the exposure (e.g. nominal amount of loan);

G_A is the nominal amount of the cover (adjusted if necessary for foreign exchange risk);

r^* is the effective risk weight of the position taking into account the risk reduction from the credit protection purchased;

r is the risk weight of the obligor;

w is the residual risk factor; and

g is the risk weight of the protection provider.

135. In the case of a full guarantee/credit protection, the equation becomes the following:

$$E \times r^* = E \times [w \times r + (1 - w) \times g]$$

(b) Tranched cover

136. In a tranched structure, the bank transfers a portion of the risk of a loan to a protection seller and retains some level of risk of the loan. The risk transferred and the risk retained are of different seniority. Banks may obtain credit protection for either the senior tranche (i.e. second loss portion) or the junior tranche (i.e. first loss portion).

Case 1: credit risk on junior tranche is transferred and risk on senior tranche is retained

137. For banks obtaining credit protection, the risk weights on the partially-protected exposure will be calculated using the proportionate formula set out above, where the junior tranche will be treated as covered (after application of appropriate haircuts) while the senior tranche will receive the risk weight of the underlying obligor.

138. For banks providing protection, the amount of the junior tranche covered must be deducted from the bank's capital.

Case 2: credit risk on junior tranche is retained and risk on senior tranche is transferred

139. Banks obtaining the credit protection must deduct the junior tranche from their capital. The senior tranche transferred will be risk-weighted using a weighted average (depending on the proportion of the loan that is covered) of the risk weight of the original obligor and the protection provider. For the nominal amount of the senior tranche (after application of appropriate haircuts), G_S, the risk-weighted assets will therefore be:

$$G_S \times [w \times r + (1 - w) \times g]$$

140. Banks providing protection to the senior tranche will have to hold capital against the full amount of the underlying assets, less the amount of the junior tranche. However, the total capital requirement (including the capital deduction) will not exceed that on an otherwise identical loan for which there is no credit protection.

(iv) Currency mismatches

141. Where the credit protection is denominated in a currency different from that in which the exposure is denominated – i.e. there is a currency mismatch – the amount of the exposure deemed to be protected will be reduced by the application of a haircut H_{FX}, i.e.

$$G_A = \frac{G}{1 + H_{FX}}$$

The haircut must be scaled up using the square root of time formula, depending on the frequency of revaluation of the credit protection.

(v) Sovereign guarantees

142. As specified in section A on general rules, a lower risk weight may be applied at national discretion to banks' exposures to the sovereign (or central bank) of incorporation denominated in domestic currency and funded[26] in that currency. National authorities may extend this treatment to portions of claims guaranteed by the sovereign (or central bank), where the guarantee is denominated in the domestic currency and the exposure is funded in that currency.

(vi) W: remaining risks

(a) Guarantees

143. Where the guarantor is a sovereign, central bank or bank, *w* is zero.

144. For all other guarantees recognised as giving protection, *w* is 0.15.

(b) Credit derivatives

145. For all credit derivatives recognised as giving protection, *w* is 0.15.

5. Maturity mismatches

146. For the purposes of calculating risk-weighted assets, a maturity mismatch occurs when the residual maturity of a hedge is less than that of the underlying exposure.

(i) Definition of maturity

147. The maturity of the underlying exposure and the maturity of the hedge should both be defined conservatively. The effective maturity of the underlying should be gauged as the longest possible remaining time before the obligor is scheduled to fulfil its obligation. For the hedge, embedded options which may reduce the term of the hedge should be taken into

[26] This is to say that the bank would also have liabilities denominated in the domestic currency.

account so that the shortest possible effective maturity is used. For example, the effective maturity of a hedge with step-up and call features will be the remaining time to the first call.

(ii) Risk weights for maturity mismatches

148. Hedges of less than one year residual maturity, which do not have matching maturities with the underlying exposures, will not be recognised. The adjusted risk weight for maturity-mismatched exposures will be as follows:

for t less than 1 year, $r^{**} = r$

for t over 1 year, $r^{**} = \left(1 - \frac{t}{T}\right) x r + \left(\frac{t}{T}\right) x r^{*}$

where: r^{**} is the risk weight of the mismatched position;

r is the risk weight on the unhedged position;

r^{*} is the risk weight if the position had been hedged without a maturity mismatch;

t is the residual maturity of the hedge; and

T is the residual maturity of the exposure ($t \leq T$).

6. DISCLOSURE

149. In order to obtain any regulatory capital recognition for any credit risk mitigation technique, banks must fulfil the disclosure requirements set out in paragraphs 654-656 in the Pillar 3 section.

III: Credit Risk – the internal ratings based approach

A. MECHANICS OF THE IRB APPROACH

1. CATEGORISATION OF EXPOSURES

150. Under the internal ratings-based (IRB) approach, banks will be required to categorise banking-book exposures into six broad classes of assets with different underlying credit risk characteristics, subject to the definitions set out below. The classes of assets are corporates, banks, sovereigns, retail, project finance and equity. For each of the first four of these asset classes there is a specified set of risk inputs, risk weights and minimum requirements for eligibility.

151. The classification of exposures in this way is broadly consistent with established bank practice. However, some banks may use different definitions in their internal risk management and measurement systems. While it is not the intention of the Committee to require banks to change the way in which they manage their business and risks, banks will be required to apply the appropriate treatment to each exposure for the purposes of IRB analysis, tabulation and reporting.

152. Banks will need to demonstrate to supervisors that their methodology for assigning exposures to different classes is consistent over time. Generally, all exposures that do not specifically meet one of the definitions in paragraphs 154 to 158 below will be categorised as corporate exposures.

(i) Definition of corporate exposures

153. In general, a corporate exposure is defined as a debt obligation of a corporation, partnership, or proprietorship. Exposures to corporates are characterised by the fact that the source of repayment is based primarily on the ongoing operations of the borrower, rather than the cash flow from a project or property. This definition would also include those public sector entities (PSEs) that do not meet the characteristics of a sovereign, as defined below.

(ii) Definition of bank exposures

154. This treatment covers exposures to banks and securities firms. This includes Multilateral Development Banks (MDBs) that do not meet the criteria for a zero percent risk weighting under the standardised approach.

(iii) Definition of sovereign exposures

155. All exposures treated as sovereigns under the standardised approach will be treated as sovereigns for the purposes of the IRB approach. This includes sovereigns (and their central banks), PSEs identified as sovereigns in the standardised approach and MDBs which meet the criteria for a zero percent risk weighting under the standardised approach.

(iv) Definition of retail exposures

156. An exposure will be categorised as a retail exposure if it meets all of the following criteria:

- Orientation of exposure: The exposure is to an individual person or persons, and/or guaranteed by such person or persons. Lending to a small business which does not meet this criterion (and which meets additional criteria to be developed by the Committee) may be included in this treatment with the explicit approval of supervisors, provided (a) that the bank treats such exposures in its internal risk management and risk assessment processes consistently over time in the same way as other retail exposures and (b) they also meet the other three criteria outlined below.

- Product Criteria: the exposure takes the form of any of the following: credit cards, instalment loans (e.g. personal finance, leasing), revolving credits (e.g. overdrafts), residential mortgages, and small business facilities.

- Low-value of individual exposures: Supervisors may choose to set a maximum loan amount for an exposure to be treated as retail in nature.

- Large number of exposures: The exposure should be one of a large pool of loans, which are managed by the bank in a comparable fashion. Supervisors may choose to set a minimum number of exposures within a pool for exposures in that pool to be treated as retail.

(v) Definition of project finance exposures

157. The preliminary definition of project finance exposures is loans where the performance of the underlying, unique project, whether it is still under construction or already in development or use, is intended to warrant the debt service and, accordingly, serves as the primary source of repayment. This definition is intended to place emphasis on the dependence of the performance of the loan on the performance of the underlying project or property. As such, project finance would be expected to include raw land, construction lending, income producing real estate-based lending, and some specific project-based lending in sectors such as energy and natural resources, mining, power, transportation infrastructure, environment, media, and telecom.

(vi) Definition of equity exposures

158. Equity exposures are ownership interests in a corporation, partnership or other business undertaking. Such exposures would include preference shares as well as common shares. They could derive variously from strategic cross holdings, other banking book holdings of tradable equity, start-up and venture capital positions, and indirect positions through funds and equity held as a result of debt/equity swaps. The Committee has developed a treatment for investments in group companies as part of its work on the scope of application of the New Accord and any internal ratings treatment of equity will complement this approach. Trading book exposures are specifically excluded. To ensure that the economic risks associated with equity positions are covered, the Committee is proposing to include debt claims designed to mimic the features of ownership claims (e.g. interest payments linked to dividends or profits) in the approach to equity exposures.

2. ADOPTION OF THE IRB APPROACH ACROSS ALL EXPOSURES

159. A banking group that has met the requisite minimum requirements and is using the IRB approach for some of its exposures must adopt the IRB approach across (a) all exposure classes, as defined in paragraphs 153 to 158, and (b) across all significant business units (groups, subsidiaries, and branches) within a reasonably short period of time. Banks must agree to an aggressive, articulated plan to adopt the IRB approach across all exposure classes and business units with the home supervisor. Within this period, no capital relief would be granted for intra-group transactions between the IRB bank and a business unit on the standardised approach. This includes asset sales or cross guarantees.

160. Some exposures in non-significant business units that are immaterial in terms of size and perceived risk profile may be exempt from the above rule, subject to national discretion. Capital requirements for such operations will be determined according to the standardised approach, with the national supervisor to consider whether a bank should hold more capital under Pillar 2. No capital relief would be granted for intra-group transactions between the IRB bank and a business unit on the standardised approach. This includes asset sales or cross guarantees.

3. ADOPTION OF ELEMENTS OF THE ADVANCED APPROACH FOR IRB

161. For corporate, bank, and sovereign exposures, the Committee has developed both foundation and advanced methodologies for the estimation of risk components (there is no such distinction between foundation and advanced methodologies in the retail framework). In the foundation approach to corporate, bank, and sovereign exposures, a bank must internally estimate the probability of default (PD) associated with a borrower grade, while relying on supervisory rules for the estimation of other risk components. The Committee has also developed an advanced approach in which banks may use internal estimates of three additional risk components: Loss given default (LGD), Exposure at default (EAD) and the treatment of guarantees/credit derivatives. Recognition of internal estimates of each is associated with a specific set of minimum requirements outlined in paragraphs 324 to 421. When a bank has met the minimum requirements for any of these three elements, the advanced treatment of this element would apply. A bank would initially be allowed to move to the advanced approach for one element. However, once a bank moves to own estimates for one risk element, supervisors would expect the bank to move to the advanced approach for the other risk factors, within a reasonably short period of time, subject to the bank's ability to demonstrate that it meets the requisite minimum requirements. To support this, the bank would need to agree to an aggressive implementation plan with the supervisor.

162. Banks adopting the advanced treatment for any advanced risk component – LGD, EAD, or guarantees/credit derivatives – are required to calculate their minimum regulatory capital requirements for credit risk in parallel for the foundation and the advanced IRB approach for two years following the date of implementation of the New Accord. During these two years, capital requirements for credit risk resulting from the advanced treatment will be subject to a floor of 90% of the institution's capital requirements for credit risk that would result under the foundation approach. The Committee will develop simplified rules for the calculation of foundation IRB capital requirements for those banks moving directly to own estimates of any advanced risk component at the date of implementation.

4. TRANSITION PERIOD FOR DATA REQUIREMENTS UNDER THE IRB APPROACH FOR CORPORATE, SOVEREIGN, BANK AND RETAIL EXPOSURES

163. The transition period starts on the date of implementation and will last for a period of 3 years from that date. During this period, the following minimum requirements can be relaxed, subject to discretion of the national supervisor.

164. For corporate, bank and sovereign exposures: paragraph 283 - The requirement that irrespective of whether a bank is using external, internal, or pooled data sources, or a combination of the three, for its estimation of probability of default (PD), the length of the underlying historical observation period used must be at least 5 years. A bank will need to meet this requirement by the conclusion of the transition period. As such, a bank must have a minimum of 2 years of data by the time of implementation (i.e. in 2004); this requirement will increase by one year for each subsequent year of transition.

165. For retail exposures, paragraph 472 - The requirement that irrespective of whether a bank is using external, internal, or pooled data sources, or a combination of the three, for its estimation of loss characteristics (PD and LGD, or expected loss (EL), as well as EAD) the length of the underlying historical observation period used must be at least 5 years. A bank will need to meet this requirement by the conclusion of the transition period. As such, a bank must have a minimum of 2 years of data by the time of implementation (i.e. in 2004); this requirement will increase by one year for each subsequent year of transition.

166. For corporate, bank, sovereign and retail exposures – paragraphs 301 and 475: The requirement that a bank must demonstrate that it has been using a rating system that was broadly in line with the minimum requirements articulated in this document for at least the last three years.

5. DERIVATION OF RISK WEIGHTED ASSETS UNDER IRB APPROACH

167. The following sections present the mechanics for the derivation of risk weighted assets under the IRB approach. These are for banking book positions.

168. For each broad classification of exposure (corporate, retail, etc.) risk weights are derived from a specific, continuous function. A risk-weighted asset is defined as the risk weight of a transaction multiplied by a measure of exposure for that transaction. Total risk weighted assets (RWA) are the sum of individual RWA across all transactions.

169. The calculation of total RWA for non-retail exposures under the IRB approach is a two-step process. First, the bank computes a *baseline* level of RWA for non-retail exposure classes. This baseline level is calculated by summing the individual exposures multiplied by their respective IRB risk weights which, in turn, depend on each instrument's PD, LGD, and, where applicable, maturity. Second, the bank's *total* RWA for non-retail exposures classes is calculated by adding to this baseline level an adjustment, which may be positive or negative, reflecting granularity (i.e. the degree of single-borrower risk concentrations) within non-retail exposure classes. The effect of this adjustment is to increase (reduce) the total RWA of classes of exposures having relatively large (small) single-borrower risk concentrations.

170. The mechanics for the derivation of risk weights, exposure amounts and hence the *baseline* level of RWA within each broad exposure classification for IRB purposes are presented below. Paragraphs 503 – 515 then set out the proposals for the granularity adjustment, and the mechanics for calculating *total* RWA.

B. RULES FOR CORPORATE EXPOSURES

1. RISK WEIGHTED ASSETS FOR CORPORATE EXPOSURES

(i) Formula for derivation of risk weights

171. The derivation of risk weights is dependent on estimates of the PD, LGD and, in some cases, maturity (M), that are attached to an exposure.

172. Throughout this section, PD, LGD, and EAD are expressed as whole numbers rather than decimals, except where explicitly noted otherwise. For example, LGD of 100% would be input as 100. The exception is in the context of the benchmark risk weight (BRW) and the maturity slope (b) – see paragraphs 174 and 177. In these equations, PD is measured as a decimal (e.g. a 1% probability of default would be represented as 0.01).

173. Where there is no explicit maturity dimension in the foundation approach, corporate exposures will receive a risk weight that depends on the probability of default (PD) and loss given default (LGD) (after recognising any credit enhancements from collateral, guarantees or credit derivatives). The average maturity of all exposures will be assumed to be three years. Thus, an exposure's risk weight, RW_c, can be expressed as a function of PD and LGD according to the following formula:

RW_C= (LGD/50) x BRW_C (PD), or 12.5 x LGD, whichever is smaller.[27]

174. In this expression, RW_C denotes the risk weight associated with given values of PD and LGD for corporate exposures, while BRW_C denotes the corporate benchmark risk weight associated with a given PD, which is calibrated to an LGD of 50%. The BRW_C is assigned to each exposure reflecting the PD of the exposure based on the following equation: In this equation, PD is expressed as a decimal – e.g. a PD of 10% would be input as 0.1.

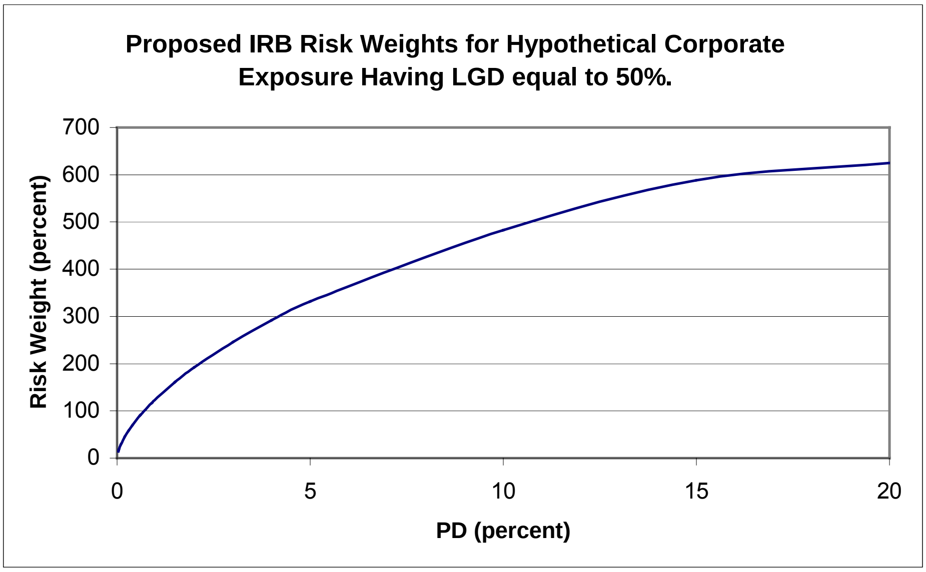
$$BRW_C(PD) = 976.5 \times N\,(1.118 \times G\,(PD) + 1.288) \times (1 + .0470 \times (1 - PD)/PD^{0.44})$$ [28]

where $N(x)$ denotes the cumulative distribution function for a standard normal random variable (i.e. the probability that a normal random variable with mean zero and variance of one is less than or equal to *x)*, and where $G(z)$ denotes the inverse cumulative distribution function for a standard normal random variable (i.e. the value *x* such that $N\,(x) = z$).

175. A graphical depiction of the benchmark risk weights, given combinations of PD, is presented below.

[27] The purpose of the cap is to ensure that, prior to the granularity adjustment (see below), no risk weight can be more penal than would be the effect of deducting from capital the exposure's expected loss in the event of default.

[28] The functions N and G in the equation are generally available in spreadsheet and statistical packages. For both functions, the mean should be set at zero and the standard deviation should be set at one.



176. Representative values for the above benchmark risk weights are presented in the table below.

PD(%)	BRW_C
0.03	14
0.05	19
0.1	29
0.2	45
0.4	70
0.5	81
0.7	100
1	125
2	192
3	246
5	331
10	482
15	588
20	625

177. In the advanced approach, and where there is an explicit maturity dimension in the foundation approach, for exposures with a maturity other than three years, the exposure's risk weight would be scaled upward or downward based on the exposure's PD and level of M. Thus, a corporate exposure's risk weight, RW_C, can be expressed as a function of PD, LGD, and M according to the following formula:

RW_C = (LGD/50) x BRW_C (PD) x [1 + b (PD) x (M – 3)], or 12.5 x LGD, whichever is smaller.

The sensitivity of the maturity adjustment factor to M is denoted by b, and depends on PD. The Committee will be developing a treatment for calibrating b. See paragraph 226 for the definition of M.

(ii) Inputs to the risk-weight function

178. The mechanics for the derivation of PD, LGD, and M are presented in the sections below.

(a) Probability of Default (PD)

179. There are two scenarios for the estimation of PD.

Underlying borrower – no third-party guarantor or credit protection seller

180. The PD of an exposure is the greater of the one-year PD associated with the internal borrower grade to which that exposure is assigned, or 0.03%. The minimum requirements for the derivation of the PD estimates associated with each internal borrower grade are outlined in paragraphs 270 to 283.

Underlying borrower supported by guarantee or credit derivative

181. There are two approaches for the recognition of credit risk mitigation in the form of guarantees and credit derivatives in the IRB approach: a foundation approach (outlined below) and an advanced approach for those banks which meet the specific minimum requirements (see paragraphs 403 to 421).

PD adjustments for guarantees and credit derivatives under the foundation approach

182. The foundation approach to guarantees and credit derivatives closely follows the treatment outlined in paragraphs 117 to 145 in the standardised approach. In particular, the minimum conditions and operational requirements for recognition as set out in paragraph 117 to 128 are identical. In terms of the range of eligible guarantors or protection providers, credit protection will be recognised for the same entities as under the standardised approach (see paragraph 129). These include sovereign entities, PSEs and banks with a lower PD than the obligor, and corporates (including insurance companies) including parental guarantees rated A or better, or unrated companies which are internally rated and associated with a PD equivalent to A or better.

183. The effective probability of default (PD*) applicable to the covered portion of the exposure will be:[29]

$$PD^* = w \times PD_B + (1-w) \times PD_G$$

where:

PD_B is the probability of default of the obligor;

PD_G is the probability of default of the guarantor/protection provider; and

w is the weight applied to the transaction (0 or 0.15) .

The uncovered portion of the exposure is assigned the PD of the underlying obligor.

[29] The PD of a counterparty refers to the probability of default associated with the internal grade to which the counterparty is assigned, as described in section B-2(vi).

184. Where partial coverage exists, or where there is a currency mismatch between the underlying obligation and the credit protection, it is necessary to split the exposure into a covered and uncovered amount. The treatment in the foundation approach closely follows that outlined in the standardised approach, and depends upon whether the cover is proportional or tranched.

185. With respect to proportional cover, consistent with the standardised approach, the protected portion of the exposure (G_A) is defined as the nominal amount of the guarantee adjusted for any currency mismatch:

$G_A = G_{nominal} / (1+H_{Fx})$

The calculation of H_{Fx} is identical to that set out in the standardised approach (see paragraph 86 to 98)

The uncovered portion of the exposure (E*) is defined as:

$E^* = E – G_A$

where E is the exposure amount.

186. The treatment of tranched cover is consistent with the standardised approach.

187. The treatment of residual risks will be the same as under the standardised approach. For guarantees recognised as giving protection, *w* will be 0.15. As with the standardised approach, where the guarantor is a sovereign, central bank or bank, *w* will be zero. For all credit derivatives recognised as giving protection, *w* will be 0.15.

PD adjustments for guarantees and credit derivatives under the advanced approach

188. Under this option, banks would use their own internal assessment of the degree of risk transfer, within supervisory defined parameters when credit protection in the form of guarantees or credit derivatives is taken. Specifically, the guaranteed facility would receive a PD appropriate to the borrower or the guarantor's borrower grade, or an intermediate grade if a bank deems full substitution treatment not to be warranted.

189. In contrast with the foundation approach, there are no limits on the range of eligible guarantors nor is a *w* factor applied to the guarantor/protection provider.

190. To use the advanced approach, the bank must meet the minimum requirements specified in paragraphs 403 to 421.

Treatment of maturity mismatches

191. A maturity mismatch occurs when the residual maturity of a hedge is less than that of the underlying exposure. Both the maturity of the underlying exposure and the maturity of the hedge should be defined conservatively. The effective maturity of the underlying should be gauged as the longest possible remaining time before the obligor is scheduled to fulfil its obligations. For the hedge, embedded options that may reduce the term of the hedge should be taken into account so that the shortest possible effective maturity of the hedge is used.

192. Where there is no explicit maturity dimension for the purposes of deriving risk weights, the treatment for maturity mismatched credit protection closely follows that of the standardised approach. Where a maturity mismatch exists, the PD (PD**) attached to the covered portion of the exposure (G_A as defined above) is adjusted in the following way.

Hedges of less than one year residual maturity, which do not have matching maturities with the underlying exposures, will not be recognised:

for t less than 1 year, $PD^{**} = PD$

for t over 1 year, $PD^{**} = \left(1 - \frac{t}{T}\right) x\ PD + \left(\frac{t}{T}\right) x\ PD^{*}$

where:

PD is the probability of default on the obligor;

PD^{*} is the effective probability of default if there were no maturity mismatch;

t is the residual maturity of the hedge; and

T is the residual maturity of the exposure.

193. Where there is an explicit maturity dimension for the purposes of deriving risk weights, a different treatment of maturity mismatches will apply. For the proportion of the exposure covered by the hedge, the treatment for recognition of the hedge under either the foundation or advanced approach (as applicable) would apply as if there were not a maturity mismatch. For the remaining uncovered forward portion, a two-legged treatment will be applied. The contribution to the capital requirement for the uncovered forward portion will be equal to the difference in risk weights between an exposure to the borrower of the original maturity and an exposure to the borrower of the maturity of the guarantee. The Committee seeks to ensure that such treatment continues to provide incentives for banks to appropriately hedge forward exposures as well ensure that such treatment provides prudential coverage of such mismatched positions. As such the Committee is considering whether additional regulatory capital beyond that implied by the difference in risk weights would be required.

(b) Loss Given Default (LGD)

194. A bank must provide an estimate of the loss given default (LGD) for each corporate exposure. There are two approaches for deriving this estimate: a foundation approach and an advanced approach.

LGD under the foundation approach

Treatment of unsecured claims and non-recognised collateral

195. Under the foundation approach, senior claims on corporates without specifically recognised collateral will be assigned a 50% LGD.

196. Subordinated claims on corporates (as defined in paragraph 311) without specifically recognised collateral will be assigned a 75% LGD.

Eligible collateral under the foundation approach

197. There are two broad categories of eligible collateral under the foundation IRB approach: eligible collateral recognised in the standardised approach (hereafter referred to as eligible financial collateral), and specified commercial and residential real estate collateral (hereafter referred to as eligible physical collateral).

198. Before a bank may recognise the effect of collateral on LGD, it must demonstrate adherence to a number of minimum requirements. For eligible financial collateral, the requirements are identical to the operational standards outlined in paragraphs 67 to 74 of the standardised approach. Banks should also refer to paragraphs 310 and 311. In respect of eligible physical collateral, the minimum requirements are articulated in paragraphs 310 to 321.

Methodology for recognition of financial collateral under the foundation approach

199. The methodology for the recognition of eligible financial collateral closely follows that outlined in the 'comprehensive approach' to collateral in the standardised approach outlined in paragraphs 80 to 105. The 'simple approach' to collateral presented in the standardised approach will not be available to banks applying the IRB approach.

200. Following the comprehensive approach, the effective loss given default (LGD*) applicable to a collateralised transaction can be expressed as follows, where:

- LGD is that of the unsecured exposure before recognition of collateral (either 50% or 75%, as above);
- E is the uncollateralised exposure amount (i.e. cash lent or securities lent or posted);
- C is the current value of the collateral received;
- H_E, H_C , and H_{FX} are haircuts as defined in paragraph 85 of the standardised approach; and
- *w* is the floor factor applied to the secured portion of the transaction and is set at 0.15.

The adjusted value after haircut of the collateral (C_A) is:

$$C_A = \frac{C}{1 + H_C + H_E + H_{FX}}$$

201. If the value of the exposure exceeds the adjusted value of the collateral, i.e. $E > C_A$, then:

$$\text{LGD}^* = \text{LGD} \times [1-(1-w) \times (C_A/E)]$$

202. If the value of the exposure is less than the adjusted value of the collateral, i.e. $E < C_A$, then LGD* is subject to a floor:

$$\text{LGD}^* = w \times \text{LGD}$$

Collateral haircuts

203. Banks under the foundation IRB approach may calculate haircuts in either of the two ways specified in the standardised approach. Under the standard supervisory haircut approach, each item of eligible collateral receives the same standard haircut as under the standardised approach. Alternatively, subject to the same operational standards specified in the standardised approach (see paragraphs 92 to 95), supervisors may permit banks to use their own internal estimates of collateral volatilities (N.B. this is not to be confused with own estimates of LGD under the advanced approach).

204. In terms of the derivation of values for H, the distinction between capital-market driven transactions and secured lending, and the adjustments to the haircuts they imply, is identical to that presented in paragraphs 96 to 100 of the standardised approach.

Special treatment for government repo-style transactions

205. Banks may apply a zero *w* for such transactions, subject to meeting the same requirements as presented in paragraph 102 of the standardised approach.

Carve out from comprehensive approach

206. As in the standardised approach, for transactions where the conditions for zero *w* are met, and in addition, the counterparty is a core market participant, supervisors may choose not to apply the haircuts specified under the comprehensive approach, but instead to apply a zero H.

Eligible CRE and RRE under the foundation approach

207. In addition to the eligible financial collateral specified above, banks under the foundation IRB approach may obtain capital relief from other specified types of physical collateral. Such physical collateral must meet the minimum requirements set out in paragraphs 310 to 321.[30]

Methodology for Recognition of CRE and RRE Collateral

208. The methodology for determining the effective LGD (LGD*) under the foundation approach for cases where banks have taken commercial real estate (CRE) or residential real estate (RRE) collateral to secure a corporate exposure is as follows.

209. Exposures where the minimum eligibility requirements are met, but the ratio of current collateral value (C) to the nominal exposure (E) is below a threshold level of 30% would receive the appropriate LGD for unsecured exposures or those secured by non-recognised collateral of 50%.[31]

210. Exposures where the ratio of collateral value to the nominal exposure exceeds a second, higher threshold level of 140% would be assigned an LGD of 40%.

211. Exposures where the ratio of the collateral value to the nominal exposure is between the threshold levels as defined in the previous paragraphs would receive an LGD* that is a weighted average of the secured and unsecured LGD figures as specified below.

212. These three cases can be summarised in the following table:

[30] The Committee, however, recognises that, in exceptional circumstances for well-developed and long-established markets, mortgages on office and/or multi-purpose commercial premises and/or multi-tenanted commercial premises may have the potential to receive recognition as collateral in the corporate portfolio. Please refer to footnote 14 of paragraph 38 for a discussion of the eligibility criteria that would apply. The LGD applied to the collateralised portion of such exposures, subject to the limitations set out in paragraphs 67 to 74 of the standardised approach, will be set at 40%. The LGD applied to the remaining portion of this exposure will be set at 50 percent. In order to ensure consistency with the capital charges in the standardised approach (while providing a small capital incentive in the IRB approach relative to the standardised approach), supervisors may apply a cap on the capital charge associated with such exposures so as to achieve comparable treatment in both approaches.

[31] If there were a loan that was subordinated as defined in paragraph 311, and secured by collateral that met the eligibility requirements, the effective LGD would be based on the LGD of the subordinated loan (i.e. 75%). This treatment would also apply in the calculation of effective LGD under pools of collateral.

	Condition	Effective LGD
Case 1	$C/E \leq 30\%$	50%
Case 2	$C/E > 140\%$	40%
Case 3	$30\% < C/E \leq 140\%$	$\{1-[0.2 \times (C/E)/140\%]\} \times 50\%$

Methodology for the treatment of pools of collateral

213. The methodology for determining the LGD* of a transaction under the foundation approach for cases where banks have taken both financial collateral (FI) and physical collateral (PH) to secure a corporate exposure is as follows.

214. Exposures have to be split into a part that is secured by financial collateral only and another part secured by physical collateral only ($E=E_{fi}+E_{ph}$), for purposes of calculation of regulatory capital. Both types of recognised collateral must meet the minimum eligibility requirements as they are set out in the respective paragraphs.

215. First, the adjusted value after haircut for the financial collateral ($C_{A,fi}$) must be calculated as outlined in paragraphs 199 to 206.

216. In a second step the exposures have to be reduced for the part secured by financial collateral ($E_{ph}=E-C_{A,fi}$). This part of the exposure is treated as if it were fully collateralised. The effective loss given default for this part is LGD_{fi}* and has to be calculated via $LGD_{fi}^*=LGD \times w$.

217. Reduced exposures where the ratio of the sum of collateral value for physical collateral ($C_{ph}=C_{cre}+C_{rre}$) to the reduced exposure (E_{ph}) after recognising financial collateral is below a threshold level of 30% would receive the appropriate unsecured LGD of 50% for unsecured exposures or those secured by non-recognised collateral.

218. Reduced exposures where the ratio of the sum of collateral value for physical collateral ($C_{ph}=C_{cre}+C_{rre}$) to the reduced exposure (E_{ph}) after recognising financial collateral exceeds a second, higher threshold level of 140% would be assigned an LGD of 40%.

219. Reduced exposures where the ratio of the sum of collateral value for physical collateral ($C_{ph}=C_{cre}+C_{rre}$) to the reduced exposure (E_{ph}) after recognising financial collateral is between the threshold levels as defined in the previous paragraphs would receive an effective LGD_{ph}* that is a weighted average of the secured and unsecured LGD figures as specified below.

220. These three cases for calculating the effective loss given default LGD_{ph}* for the part of the loan secured by physical collateral can be summarised in the following table:

	Condition	Effective LGD_{ph}* for reduced exposure
Case 1	$C_{ph}/E_{ph} \leq 30\%$	50%
Case 2	$C_{ph}/E_{ph} > 140\%$	40%
Case 3	$30\% < C_{ph}/E_{ph} \leq 140\%$	$\{1-[0.2 \times (C_{ph}/E_{ph})/140\%]\} \times 50\%$

221. The LGD* of the transaction under the foundation approach for cases where banks have taken both financial collateral and physical collateral to secure a corporate exposure is the weighted average of LGD_{fi}*, for the part secured by financial collateral, and the part secured by physical collateral, LGD_{ph}*:

$$LGD^* = [(E - E_{ph}) \times LGD_{fi}^* + E_{ph} \times LGD_{ph}^*]/E$$

LGD under the Advanced Approach

222. Subject to certain additional minimum requirements specified below, supervisors may permit banks to use their own internal estimates of LGD for corporate exposures.

223. Supervisory recognition of internal estimates of LGD will be limited to banks that meet qualitative and quantitative minimum requirements that are more rigorous than those required of institutions making use of the foundation IRB approach. Banks eligible for the IRB approach that are unable to meet these higher minimum requirements would utilise the foundation LGD treatment described above.

224. The LGD of the exposure is equal to the internal estimate of LGD associated with the LGD grade to which that exposure is assigned. The minimum requirements for the derivation of LGD estimates associated with each LGD grade are outlined in paragraphs 336 to 355. Consistent with other parts of the New Accord, national supervisors may choose to adopt more restricted and conservative recognition of LGD own estimates than that set out in these requirements.

(c) Maturity (M)

225. In the advanced approach, and where there is an explicit maturity dimension in the foundation approach, banks must provide an assessment of the maturity (in years) for each exposure.

226. Maturity is defined as the greater of one year and the following:

(i) Unless otherwise provided below, the maximum remaining time (in years) that the borrower is permitted to take to fully discharge its contractual obligation (principal, interest, and fees) under the terms of loan agreement. Normally, this will correspond to the nominal maturity of the instrument.

(ii) For an instrument subject to a pre-determined, minimum amortisation schedule, the weighted maturity of the remaining minimum contractual principal payments, is defined as:

$$\text{Weighted Maturity} = \sum_t tP_t \Big/ \sum_t P_t$$

where P_t denotes the minimum amount of principal contractually payable in period t.

227. In either case, the effective maturity will be no greater than 7 years.

228. Where there is no explicit adjustment in the foundation approach, the effective maturity (M) assigned to all exposures is the same, and is currently set at 3 years.

(d) Measurement of exposure amounts for corporate exposures

229. The following sections apply to both on and off-balance sheet positions. All exposures are measured net of specific provisions.

Exposure Measurement for on-balance sheet items

230. Exposure is measured as the nominal outstanding for on-balance sheet items. On-balance sheet netting of loans and deposits of banks to or from a corporate counterparty will be permitted subject to the same conditions as under the standardised approach (see paragraphs 112 to 116). Where currency or maturity mismatched on-balance sheet netting exists, the treatment follows the standardised approach, as set out in paragraphs 141 and 146 to 148.

Exposure measurement for off-balance sheet items (with the exception of FX and interest-rate, equity, and commodity-related derivatives)

231. For off-balance sheet items, exposure is calculated as the committed but undrawn line multiplied by a credit conversion factor (CCF). There are two approaches for the estimation of CCFs: a foundation approach and an advanced approach.

Foundation Approach

232. The types of instruments and the credit conversion factors applied to them remain the same as those in the standardised approach, as outlined in paragraphs 42 to 44 with the exception of commitments. Other than those facilities which are uncommitted, that are unconditionally cancellable, or that effectively provide for automatic cancellation, for example due to deterioration in a borrower's creditworthiness, at any time by the bank without prior notice, a credit conversion factor of 75% will be applied regardless of the maturity of the underlying commitment.

Advanced Approach

233. Banks which meet the minimum requirements for use of their own estimates of exposure (see paragraphs 367 to 402) will be allowed to use their own internal estimates of CCFs (typically referred to as exposure at default (EAD) in banks' internal systems) across different product types.

Exposure measurement for foreign exchange, interest rate and equity and commodity derivatives

234. Measures of exposure for these instruments under the IRB approach will be calculated as per the rules for the calculation of credit equivalent amounts under the 1988 Accord - i.e. based on the same methodology (replacement cost plus potential future exposure) and matrix of add-ons across the different product types and maturity bands as set out in Annex 3 of the 1988 Accord.

2. MINIMUM REQUIREMENTS FOR CORPORATE EXPOSURES

(i) Composition of minimum requirements

235. To be eligible for the IRB approach a bank must demonstrate to its supervisor that it meets certain minimum requirements at the outset and on an ongoing basis. These are the minimum requirements for the IRB approach. Banks that do not meet the minimum requirements will not be able to make use of the IRB approach.

236. Parts (ii) to (x) of this section cover the overall minimum requirements that banks will need to meet in order to qualify for the IRB approach. Part (xi), includes minimum requirements for the use of supervisory estimates of LGD and EAD, and supervisory treatment of guarantees/credit derivatives. The next section, Section 3, covers additional separate minimum requirements that banks wishing to use their own LGD and EAD estimates, and internal treatment of guarantees/credit derivatives under the advanced IRB approach, must meet.

(ii) Criteria to ensure meaningful differentiation of risk

(a) Overall rating system structure

237. The overarching standard here is that the rating system provides for a separate assessment of borrower and transaction characteristics and provides for a meaningful differentiation of risk. The term "rating system" comprises all of the methods, processes, controls, and data collection and IT systems that support the assessment of credit risk, the assignment of internal risk ratings, and the quantification of loss estimates. This requirement has a number of separate elements, as noted below.

238. A bank's rating system must have two dimensions. The first dimension must be oriented to the risk of borrower default. Separate exposures to the same borrower should be assigned to the same borrower grade, irrespective of any differences in the nature of each specific transaction.

239. In addition, the bank must have a separate and distinct dimension, which takes into account transaction specific factors. This requirement can be fulfilled by existence of a facility dimension, which may take account of both borrower and transaction specific factors. It may also be fulfilled by the existence of an explicit quantifiable "LGD" rating dimension.

(b) Rating grade structure

240. A bank must have a minimum of 6 to 9 borrower grades for performing loans, and a minimum of 2 grades for non-performing loans. A non-performing grade is one where the criteria for the grade are related to the criteria for provisioning/loss or the criteria for default events. These grades could include loans to borrowers that exhibit well-defined credit weaknesses but have not defaulted, as well as those that have defaulted, but would exclude grades where loans have been fully charged off.

241. A grade is defined as an assessment of borrower risk on the basis of a specified and distinct set of rating criteria. Furthermore, "+" or "-" modifiers to the alpha or numeric grades will be recognised only to the extent that a full set of rating criteria for the assignment of these modifiers is in place.

242. There should be a meaningful distribution of exposure across grades and no excessive concentrations in any particular grade. Specifically, no more than 30% of the gross exposures (before on balance sheet netting) should fall in any one borrower grade.

243. A bank should articulate in its credit policy the relationship between borrower grades in terms of the level of risk each grade implies. This should be both in respect of the criteria by which grades are assigned, and the PD estimates derived for each grade. Perceived and measured risk should increase as credit quality declines from one grade to the next.

(iii) Completeness and integrity of rating assignments

(a) Coverage of ratings

244. Each borrower within a given portfolio must be assigned a rating before any loan is originated. In respect of connected borrowers, each separate legal entity to which the bank is exposed should be separately rated.

(b) Independent assignment or review

245. Each individual rating assignment must be subject to an independent review or approval by a person or unit that does not stand to benefit from the specific grade associated with an exposure. This requirement can be fulfilled if the rating is assigned by an independent credit risk management unit, or if the rating is assigned by others and subsequently reviewed/approved by an independent credit unit. The requirement for independent review or approval of the rating should apply not only when the borrower is originally assigned to a rating but also when the borrower is subsequently re-rated. The process by which a borrower is independently reviewed must be documented.

246. Borrowers should be re-rated or reviewed by an independent credit unit at least on an annual basis. Certain credits, especially higher risk borrowers or problem loans, should be subject to more frequent review. In addition, banks should initiate a new rating if material new information on the borrower comes to light.

247. The bank should have an effective process to obtain and update relevant information on the borrower's financial condition. Once received, the bank needs to have a procedure to update the borrower's risk rating in a timely fashion, in general, within 90 days. Borrowers whose financial condition is weak or deteriorating should receive priority and be updated generally within 30 days of receipt of this information.

(iv) Oversight over the rating system and processes

(a) Oversight by the board of directors and senior management

248. All material aspects of the rating and PD estimation process must be approved internally by the board of directors, management committee, and senior management.[32]

[32] This standard refers to a management structure composed of a board of directors and senior management. The Committee is aware that there are significant differences in legislative and regulatory frameworks across countries as regards the functions of the board of directors and senior management. In some countries, the board has the main, if not exclusive,

These parties should be able to demonstrate a general understanding of the methods described in the documentation of the rating system and process, and should approve any material divergences between established procedure as documented and actual practice.

249. Internal ratings should be an essential part in the reporting to these parties. Reporting should be on a monthly basis, and should include risk profile by grade, migration across grades, quantification of loss estimates per grade, and comparison of realised default rates against expectations.

250. Management must ensure that the rating process, criteria, and outcome are comprehensively documented in paper or electronic form. The documentation must be specific enough to allow a third party assessment of the ratings assigned and the associated calibration of an average PD per grade. The documentation must be freely accessible to all those involved in the rating process.

251. Where statistical models are used in the rating process, management must ensure that the bank has in place a comprehensive methodology document for the model. The methodology document must:

- provide a detailed outline of the theory, assumptions and/or mathematical and empirical basis of the assignment of PD estimates to grades or individual obligors, and the data source(s) used to estimate the model;
- establish a rigorous statistical process (including out-of-time and out-of-sample performance tests) for validating the selection of explanatory variables; and
- indicate circumstances under which the model does not work effectively such that the bank is fully aware of the limitations of the model.

252. Management must ensure, on an ongoing basis, that the risk rating system is operating properly. For this, there must be a structured interaction between management and the bank's control functions, in particular the credit risk control unit and internal audit. This interaction must relate to, in particular, the effectiveness of the system and adequacy of resources, as well as areas of concern and progress of corrective action on prior noted deficiencies of the risk rating system.

(b) Internal and external audit

253. Internal audit must review annually the bank's rating system, including the quantification of internal ratings. Areas of review include adherence to all applicable minimum requirements. Internal audit must document its findings.

254. Some national supervisors may also require an external audit of the bank's rating assignment process and estimation of loss characteristics.

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function of supervising the executive body (senior management, general management) so as to ensure that the latter fulfils its tasks. For this reason, in some cases, it is known as a supervisory board. This means that the board has no executive functions. In other countries, by contrast, the board has a broader competence in that it lays down the general framework for the management of the bank. Owing to these differences, the notions of the board of directors and senior management are used in this paper not to identify legal constructs but rather to label two decision-making functions within a bank.

(c) Credit review function

255. The bank should have an independent credit risk control unit(s) that is responsible for the design, implementation and performance of the bank's internal rating system. The unit(s) should be functionally independent from the personnel and management functions responsible for originating exposures. Areas of responsibility must include:

- assigning and/or reviewing and monitoring internal ratings;
- production and analysis of reports on the outputs of the bank's internal rating system, historical data on the performance of past credit exposures by internal grade, migration analyses, comparison of assigned grades to external ratings or default prediction models and aggregate monitoring of credits in each grade by key rating criteria;
- ensuring that procedures are in place to regularly check whether ratings are consistently assigned according to established policies and criteria. Areas of inconsistency must be readily identified and corrected; and
- reviewing and documenting any changes to the rating process, including the reasons for the changes.

256. The credit risk control unit must assume responsibility for and control of any models used in the rating process. This unit is ultimately responsible for the ongoing review and future changes to the model. This unit must be functionally independent of the personnel and management functions responsible for originating exposures, and any other personnel with control over the model. Information and knowledge of the model and its methodology must be disseminated outside of this lead group.

(d) Quality of staff

257. Members of staff responsible for any aspect of the rating process should be adequately qualified and trained to undertake this role. Management must allocate sufficient skilled and competent resources to these control functions. Parties responsible for assigning or reviewing risk ratings should receive adequate training to promote consistent and accurate risk rating assignments.

(v) Criteria and orientation of the rating system

(a) Development of specific rating criteria

258. A bank must have a specific rating system for rating corporate exposures. All aspects of this rating system must be thoroughly documented.

259. A bank must also have specific processes and criteria for assigning an exposure to a borrower grade. These criteria should be specific enough to allow a third-party assessment of an exposure, should demonstrate an ability to differentiate risk and be both plausible and intuitive. The criteria and reference points should reflect a critical assessment of historical experience with comparable borrowers.

260. A bank should document carefully the source and critical decision points that led to the choice of its internal rating criteria. The chosen standards and references should be periodically reviewed by the internal credit risk management unit(s) to determine whether they remain fully applicable to current borrowers and external conditions. In addition, a bank

should document a history of major changes in the risk rating process over time and changes made to the risk rating process subsequent to the last supervisory review.

(b) General rules on risk assessment process

261. A bank's assessment of risk should be conservative, especially in areas where the borrower's profile suggests uncertainty. The rating decision should consider the quality of financial and other information, and move beyond accounting information as needed. The bank's depth of credit analysis should increase as a borrower's financial condition deteriorates and default becomes more likely.

(c) Assessment horizon

262. In assigning a borrower to a grade, a bank must assess risk factors for the future horizon based on current information and experience with the borrower, including its ability to meet contractual obligations and withstand normal business stresses. Given difficulties in forecasting distant events and the influence they will have on a particular borrower's financial condition, a bank must take a conservative view of projected information. Furthermore, where limited data is available, a bank should adopt a conservative bias to its analysis.

263. For risk quantification (the process of assigning PDs to grades), a one-year horizon is used. This issue is addressed separately in paragraph 270. In terms of risk-rating shelf life, the requirement is that the bank reviews the borrower and the grade to which it is assigned at least annually and more frequently for higher-risk borrowers. This issue is addressed in paragraph 246.

(d) Criteria on risk assessment of a borrower

264. The bank must demonstrate that its criteria cover all factors that are relevant to the analysis of borrower risk. These factors should demonstrate an ability to differentiate risk, have predictive and discriminatory power, and be both plausible and intuitive in order to ensure that ratings are designed to distinguish risk rather than to minimise regulatory capital requirements.

265. Banks should take all relevant information into account in assigning ratings to a borrower. This information should be current. The methodologies and data used in assigning ratings should be clearly specified and documented. As a minimum, a bank should look at each of the following factors for each borrower:

- historical and projected capacity to generate cash to repay its debts and support other cash requirements, such as capital expenditures required to keep the borrower a going concern and sustain its cash flow;
- capital structure and the likelihood that unforeseen circumstances could exhaust its capital cushion and result in insolvency;
- quality of earnings, that is, the degree to which its revenue and cash flow emanate from core business operations as opposed to unique and non-recurring sources;
- quality and timeliness of information about the borrower, including the availability of audited financial statements, the applicable accounting standards and its conformity with the standards;

- degree of operating leverage and the resulting impact that demand variability would have on its profitability and cash flow;
- financial flexibility resulting from its access to the debt and equity markets to gain additional resources;
- depth and skill of management to effectively respond to changing conditions and deploy resources, and its degree of aggressiveness vs. conservatism;
- its position within the industry and future prospects; and
- the risk characteristics of the country it is operating in, and the impact on the borrower's ability to repay, (including transfer risk) where the borrower is located in another country and may not be able to obtain foreign currency to service its debt obligations.

(e) Specific criteria for the use of models within the rating process

266. To the extent applicable to a bank's rating process, the use of a formal statistical model must also meet the following requirements: the variables used in a model must have statistical power and the model should capture all key variables; and those that are not considered in the model should be focussed on in the risk assessment conducted by expert personnel.

267. Model-based rating assignments must be subject to review and approval by personnel in the credit risk control unit. The integrity of the rating model must be assured by the credit risk control unit which must have responsibility and control of vetted inputs and approved ratings (outputs).

(f) Exceptions to rating criteria

268. The bank must have in place clear guidelines and processes for monitoring cases where human judgement has overridden an output of the model. Specialists must be designated for addressing/vetting exceptions to input parameters specified by the model. Sign-off by the originator of the credit, the credit risk control unit and any other persons with responsibility and control over the model must be obtained in these instances.

269. For rating assignments based on expert judgement, banks must clearly articulate the situations in which bank officers may override the outputs of the rating process, including how and to what extent such overrides can be used and by whom. Instances of overrides must be clearly documented. Banks must track separately the performance of overridden grades.

(vi) Minimum requirements for estimation of PD

270. A bank must estimate a one-year PD for each of its internal rating grades. Each estimate of PD must represent a conservative view of a long-run average PD for the borrower grade in question, and thus must be grounded in historical experience and empirical evidence. At the same time, these estimates must be forward looking. In meeting these requirements, banks may incorporate relevant adjustments based on a variety of factors. Such adjustments must be applied through a well-developed and well-documented thought process and analysis. Furthermore, they should be based on available empirical evidence and other historical information such as a material change in default rates or in the

key drivers of future default. Where adjustments are made, the bank must ensure that they are applied conservatively and consistently over time.

(a) Estimation using reference definition of default

271. Banks must use the following regulatory reference definition of default in estimating PD and collecting default data from their own experience. The external data set used for estimating PDs must also be consistent with this definition. This reference definition is not intended in any way to affect banks' legal rights and remedies should a borrower fail to meet its obligations under a credit agreement, nor is it intended to establish or alter accepted accounting standards. It is intended solely to address issues related to consistent estimation of IRB loss characteristics across banks and data sources for use in regulatory capital calculations.

272. A default is considered to have occurred with regard to a particular obligor when **one or more** of the following events has taken place:

- it is determined that the obligor is unlikely to pay its debt obligations (principal, interest, or fees) in full;
- a credit loss event associated with any obligation of the obligor, such as a charge-off, specific provision, or distressed restructuring involving the forgiveness or postponement of principal, interest, or fees;
- the obligor is past due more than 90 days on any credit obligation; or
- the obligor has filed for bankruptcy or similar protection from creditors.

273. Banks must document the specific reference of default used internally, and demonstrate its consistency with the above reference definition.

(b) Minimum requirements for PD estimation

274. Banks should consider all available information for estimating the average PD per grade, including the three specific techniques set out below (internal default experience, mapping to external data, and statistical default models). Banks may have a primary source of information, and use others as a point of comparison and potential adjustment to the initial PD estimate. Banks must recognise the importance of judgmental considerations in this process, particularly in ensuring a forward-looking PD estimate. Such judgement must be applied with a conservative bias. The degree of conservatism must be generally consistent over time. This estimation must meet the following requirements:

- the population of borrowers represented in the data set is closely matched with or at least clearly comparable to those of the contemplated portfolio of the bank;
- the lending or underwriting standards used to generate the exposures in the data source are strongly comparable to those used by the bank in building its current portfolio of exposures;
- economic or market conditions under which the historical experience took place is relevant to current and foreseeable conditions; and
- the number of the loans in the sample and the data period used for quantification provide strong grounding in historical experience and, thus, confidence in the accuracy and robustness of the default estimates and the underlying statistical analysis.

275. On an ongoing basis, banks are required to have PD estimates that are properly calibrated, and which incorporate new information promptly as it becomes available. At a minimum, banks should review their PD estimates on a yearly basis.

(c) Specific minimum requirements for use of internal default experience data

276. A bank may use data on internal default experience for the estimation of PD. A bank must demonstrate in its analysis that the estimates are reflective of underwriting standards. Where only limited data is available, or where underwriting standards have changed, the bank should adopt a conservative bias in its estimate of PD.

(d) Specific minimum requirements for use of pooled data

277. The use of pooled data across institutions will also be recognised. A bank must demonstrate that the internal rating systems and criteria of other banks in the pool are comparable with its own.

(e) Specific minimum requirements for mapping to external data sets (e.g. agency grades)

278. The use of mapping techniques will also be recognised. Banks are allowed to attribute a PD to each internal grade in associating or mapping their internal grades to the scale used by an external credit assessment institution or similar institution, and then attribute the default characteristic observed for the agency grades to the bank's grades.

279. Banks must provide a meaningful mapping to the used data set and avoid possible bias or inconsistencies in the approach or underlying data. As such, the bank must demonstrate that its internal rating criteria are comparable to those used in creating or differentiating the default frequencies embedded in the used data source. Criteria must be oriented to the risk of the borrower, and not reflect transaction characteristics. The analysis must also include comparison of the default definition used.

(f) Specific minimum requirements for use of statistical default models

280. A bank is allowed to use an average of individual default-probability estimates for borrowers in a given grade using statistical default prediction models subject to the adherence to the formulated minimum requirements.

281. A bank must have in place a process for vetting data inputs into a statistical default prediction model which includes the assessment of the accuracy, completeness and appropriateness of the data specific to the assignment of an approved rating.

282. The bank must demonstrate that the population of borrowers represented in the data is representative of the population of the banks' actual borrowers.

(g) Length of underlying data period

283. Irrespective of whether a bank is using external, internal, pooled data sources, or a combination of the three, for its PD estimation, the length of the underlying historical observation period used must be at least 5 years. If the available observation period spans a longer period, this longer period should be used.

(vii) Data collection and IT systems

284. A bank must collect and store data to provide effective support to its internal credit risk measurement and management process. A bank must collect sufficient data to be able to meet other requirements laid out in this document, particularly in respect to the assignment of borrowers to grades, the loss estimates associated with grades and the migration of borrowers through grades over time. Data collection must be consistent with and support the "use test" specified in paragraphs 289 to 301 and serve as a basis for supervisory reporting. Furthermore, banks must collect and retain data on all aspects of internal ratings which form part of the core public disclosure requirements for IRB under Pillar 3 (see paragraphs 652, and 653 to 658 as applicable).

285. More specifically, banks using the IRB approach must collect and store data on rating decisions, the rating histories of borrowers, and the probabilities of default associated with rating grades and ratings migration in order to track the predictive power of the rating system. For each borrower a complete rating history must be retained including the borrower's rating since inception of the relationship, the dates the ratings were assigned, the methodology and key data used to derive the rating and the person/model who assigned the rating.

286. A history of estimated PDs and realised default rates associated with each grade must be retained.

287. Banks must collect and store data on key borrower characteristics and facility information, as well as the rating and default histories. These data should be sufficiently detailed to allow retrospective re-allocation of obligors to grades, for example if increasing sophistication of the internal rating system suggests that finer segregation of portfolios can be achieved.

288. The information technology (IT) system must support the bank's ability to meet the minimum requirements for the IRB approach, including exposure aggregation, data collection, use, and management reporting. Banks must also be able to demonstrate the integrity and robustness of their system.

(viii) Use of internal ratings

(a) Credit risk measurement and management

289. The assigned internal ratings and the quantitative information derived from them must be an integral part of daily credit risk measurement and management process.

290. Internal ratings must play an essential role in the credit approval process.

291. Default probabilities associated with internal ratings must be used within the pricing of credit risk. The cost of credit should reflect information from both the borrower and facility ratings. This information should, in turn, be used as a factor in the pricing of the exposure.

292. The setting of internal (portfolio or sub-portfolio) limits and the lending authority of underwriters must be linked to internal ratings.

293. The distribution of exposures across internal rating grades and the associated PD must be embedded in the reporting to senior management.

(b) Analysis of capital adequacy, reserving, and profitability

294. Internal ratings must be explicitly linked with the bank's internal assessment of capital adequacy, in line with the requirements of Pillar 2.

295. The bank's internal ratings and associated PD estimates must be considered in the process of reserving. The bank should have clearly articulated policies with respect to its treatment of expected loss. The PD associated to an internal grade must be used as input to the bank's profitability analysis that in turn can be used as an element of bank management processes, such as strategic resource allocation decisions or incentive compensation plans.

296. If a bank has a credit risk model that is part of profitability analysis and/or internal capital allocation, the estimated default characteristics must also be an important input into this model.

(c) Stress tests used in assessment of capital adequacy

297. A bank must have in place sound stress testing processes for use in the assessment of capital adequacy. Stress testing should involve identifying possible events or future changes in economic conditions that could have unfavourable effects on a bank's credit exposures and assessment of the bank's ability to withstand such changes. Three areas that banks could usefully examine are: (i) economic or industry downturns; (ii) market-risk events; and (iii) liquidity conditions.

298. Stress testing should include specific scenarios that quantitatively assess the impact of broad rating migration of exposures to lower rating grades. Such analysis should also examine the impact of higher default rates and lower recovery rates than a bank's predicted PD, LGD and exposure measurement.

299. Whatever the method of stress testing used, the output of the tests should be reported periodically to senior management and appropriate action must be taken in cases where the results exceed agreed tolerances.

300. An independent unit must conduct the stress test. It must be conducted at least every six months, and must be properly documented.

(d) Length of time a rating system has been in place

301. A bank must have a credible track record in the use of internal ratings information. Thus, the bank must demonstrate that it has been using a rating system that was broadly in line with the minimum requirements articulated in this document for at least the last three years. This requirement is not intended to place a moratorium on amending and improving banks' rating systems.

(ix) Internal validation

(a) Overall validation

302. Banks must have a robust system in place to validate the accuracy and consistency of rating systems, processes, and the estimation of PDs. A bank must demonstrate to its supervisor that the internal validation process enables it to assess the performance of internal rating and risk quantification systems consistently and meaningfully.

303. The bank must have in place a process for vetting data inputs which includes the assessment of the accuracy, completeness and appropriateness of the data specific to the assignment of an approved rating.

304. Detailed documentation of exceptions to data input parameters must be maintained and reviewed as part of the process cycle of model validation.

305. The process cycle of model validation must also include:

- ongoing periodic monitoring of model performance, including evaluation and rigorous statistical testing of the dynamic stability of the model and its key coefficients;
- identifying and documenting individual fixed relationships in the model that are no longer appropriate;
- periodic testing of model outputs against outcomes on an annual basis, at a minimum; and
- a rigorous change control process, which stipulates the procedures that must be followed prior to making changes in the model in response to validation outcomes.

(b) Additional requirements regarding performance

306. Banks must regularly compare realised default rates with estimated PDs for each grade, and be able to demonstrate that the realised default rate per grade is in line with the bank's expectations. Such comparisons should at least make use of historical data periods that are as long as possible. The methods and data used in such comparisons by the bank must be clearly documented, and understood by the bank. These comparisons must be conducted frequently and, at a minimum, annually.

307. Banks should make use of other quantitative validation tools. The analysis should be based on data that are appropriate to the portfolio, are updated regularly, and cover a relevant observation period. Banks' internal assessments of the performance of their own rating systems should be based on long data histories, covering a range of economic environments, and ideally a complete business cycle.

308. Banks must demonstrate that the quantitative testing methods and data are consistent through time: changes in methods and data (both data sources and the periods covered) must be clearly and thoroughly documented.

(x) Disclosure requirements

309. In order to be eligible for the IRB approach, banks must meet the disclosure requirements for the foundation IRB approach set out in Pillar 3 (see paragraphs 652, and 653 to 658 as applicable). These are minimum requirements for respect of IRB: failure to meet these will render banks ineligible to use the IRB approach.

(xi) Minimum requirements for supervisory estimates of LGD and EAD

(a) Overall minimum requirements

310. Banks under the foundation IRB approach must meet the minimum requirements for legal certainty, correlation with exposure and risk management process described in the standardised approach to receive recognition for eligible financial collateral (see paragraphs 68 to 74). Banks under the foundation IRB approach must also meet the following additional minimum requirements with respect to both financial and physical collateral, articulated below. These minimum requirements are not an exhaustive list of the operational controls and abilities necessary to maximise recoveries or those that constitute safe and sound banking practices. They are primarily focused on recoveries from collateral liquidation. Additional operational capabilities are required to maximise recoveries from other methods of resolving problem loans such as the sale of the borrower as a going concern or its reorganisation and emergence from bankruptcy.

(b) Definition of subordination

311. A subordinated loan is a facility that is expressly subordinated to another facility. At national discretion, supervisors may choose to employ a wider definition of subordination. This might include economic subordination, such as cases where the facility is unsecured and the bulk of the borrower's assets are used to secure other loans.

(c) Definition of eligible commercial real estate (CRE) and residential real estate (RRE) collateral

312. These criteria are targeted to collateral pledged by small and medium sized corporate entities.

Definition of commercial real estate (CRE)

313. CRE as collateral for corporate loans is defined as:

- collateral where the risk of the borrower is not materially dependent upon the performance of the underlying property or project, but rather on the underlying capacity of the borrower to repay the debt from other sources. As such, repayment of the facility is not materially dependent on any cash flow generated by the underlying CRE serving as collateral; and
- additionally, the value of the collateral pledged should not be materially dependent on the performance of the borrower.

314. In light of the generic description above and the definition of corporate exposures, specifically excluded from collateral types for this purpose are construction lending, raw land, project lending and income producing/investment CRE. The requirement in the second bullet is not intended to preclude situations where purely macro-economic factors may affect both the value of the collateral and the performance of the borrower.

Definition of Residential Real Estate (RRE)

315. Corporate exposures to small and medium sized enterprises may be secured by the residential real estate of the directors or owners as an added source of comfort for the bank. Lending to housing developments or apartment blocks where the risk of repayment of the

loan is significantly dependent on the cash flow generated through rental streams is not intended to be covered by this definition.

(d) Operational requirements

316. Subject to meeting the definition above, CRE and RRE will be eligible for recognition as collateral for corporate claims only if all of the following operational requirements are met.

317. Legal Enforceability: any collateral taken must be legally enforceable under all applicable laws and statutes, and claims on collateral must be properly filed on a timely basis. Collateral interests should reflect a perfected lien (i.e. all legal requirements for establishing the claim have been fulfilled). Further, the collateral agreement and the legal process underpinning it should be such that they provide for the bank to realise the collateral value within a reasonable timeframe.

318. Objective Market Value of Collateral: the collateral must be valued at or less than the current fair value under which the property could be sold under private contract between a willing seller and an arm's-length buyer on the date of valuation.

319. Frequent Revaluation: the bank is expected to monitor the value of the collateral on a frequent basis and at a minimum once every year. More frequent monitoring is suggested where the market is subject to significant changes in conditions. The valuation should take account of national jurisdictional issues and/or bankruptcy code or adjudication process issues. In addition, the property should be evaluated periodically by a qualified professional; this evaluation should be conducted no later than three years from the date of the last professional valuation, or when a maturity event (renewal, default or refinance of the underlying facility) occurs.

320. First Claim: the bank should have a first lien on, or charge over, the collateral. As such, it should have priority over all other lenders to the realised proceeds of the collateral.[33] Under this approach, no recognition for second or subsequent charges will be provided, and these will be treated as senior unsecured exposures.

321. Additional collateral management requirements are as follows:

- The types of CRE and RRE collateral accepted by the bank and policies and practices in respect of the appropriate amount of each type of collateral relative to the exposure amount should be clearly documented in internal credit policies and procedures and available for examination and/or audit review.
- Bank credit policies with regard to the transaction structure should address appropriate collateral requirements relative to the exposure amount, the ability to liquidate the collateral readily, the ability to establish objectively a price or market value, the frequency with which the value can readily be obtained (including a professional appraisal or valuation), and the volatility of the value of the collateral.
- Collateral management should be contained within a distinct operational unit of the bank.
- The bank should take steps to ensure that the property taken as collateral is adequately insured against damage or deterioration.

[33] In some jurisdictions, this is subject to the prior right of preferential creditors, such as outstanding tax claims, employees' wages, etc.

- The bank should monitor on an ongoing basis the extent of any permissible prior claims (e.g. tax) on the property (see footnote 33, paragraph 320).
- The bank should monitor and manage the risk of environmental liability arising in respect of the collateral, such as the presence of toxic material on a property.

(e) Minimum requirements for usage of supervisory EAD

322. The basis for the CCF is the lower of the value of the unused committed credit line, and the value which reflects any possible constraining availability of the facility, such as the existence of a ceiling on the potential lending amount which is related to a borrower's reported cash flow. If the facility is constrained in this way, the bank must have sufficient line monitoring and management procedures to support this contention.

323. In order to apply a zero percent CCF for unconditionally and immediately cancellable corporate overdrafts, banks must demonstrate that they actively monitor the financial condition of the borrower, and that their internal control systems are such that they could cancel the facility upon evidence of a deterioration in the credit quality of the borrower.

3. MINIMUM REQUIREMENTS FOR THE ADVANCED IRB APPROACH

324. There are three components for the advanced approach: LGD, EAD, and the treatment of guarantees/credit derivatives. There are specific minimum requirements associated with each.

325. Any bank wishing to use its own estimates for any of these components must not only meet all of the minimum requirements outlined in section 2 above, but also the additional minimum requirements for that respective component. Taken together, these minimum requirements are more rigorous than those required of institutions using the foundation approach. Banks eligible for the IRB approach that are unable to meet the minimum requirements for the particular component will continue to utilise the supervisory treatments for that component.

(i) Own estimates of loss given default

326. The minimum requirements here fall into a number of categories. They cover the structure of the rating system, the estimation of LGD for both secured and unsecured loans, as well as certain operational requirements related to collateral. LGD is defined as the expected loss given default, and expressed as a percentage of exposure.

(a) LGD rating dimension

327. A bank must have an explicit LGD rating dimension through which it explicitly rates or places an exposure into an LGD grade according to specific rating criteria. All exposures must be assigned to an LGD grade.

328. To provide for a sufficient differentiation in loss estimates, banks must have at least several distinct LGD grades which provide for a meaningful differentiation of loss rates, yet, taken together, reflect the full range of the bank's credit-extending activities. These grades may either be linked to broad ranges of LGD or, alternatively, to product, borrower, or transaction types.

(b) Completeness and integrity of LGD rating assignments

329. Broadly consistent with the minimum requirements set out for PD, the estimation and assignment of LGD grades must be performed, or at least reviewed, by personnel independent of lending or business line functions.

(c) Oversight by board and senior management

330. All material aspects of the LGD assignment and estimation process must be approved by the board of directors, management committee, and senior management (as defined in paragraph 248). These parties must also have a general understanding of the specific policies adopted by the bank which have an impact on its LGD estimates, including its underwriting standards, lending practices, and recovery process. Reporting to these parties must be on a regular basis, and must include the estimates of LGD currently being used and a comparison of realised loss rates against estimated LGDs.

331. The role of internal and external audit, the independent credit risk control unit(s), and the requirements with respect to the documentation of assignment and estimation of LGD are consistent with those articulated for PD in the foundation approach.

(d) Criteria and orientation of LGD estimates

332. The criteria for assigning an exposure to an LGD grade must be plausible and intuitive, so that a bank can demonstrate that its LGD grades are properly differentiated and that its grading structure was chosen to reflect risk rather than simply to minimise capital requirements. As with the LGD grade themselves, the risk factors addressed by the grading criteria should reflect what the bank believes to be the principal drivers of loss rates across exposures. The choice of risk factors and specific criteria must be supported by credible internal analysis by the bank. The criteria must be consistent with the bank’s internal lending standards.

333. The bank must take all relevant information into account in assigning an exposure to an LGD grade. This information should be current. A bank must use risk factors that incorporate key characteristics of both the borrower and the product or transaction type. In particular, the bank should take account of the type of product or transaction involved and whether one of a set of key collateral types (as determined by the bank based on its analysis) was taken.

334. The bank should also consider aggregate factors such as country and industry, including jurisdictional features (especially the insolvency regime) which may affect likely recoveries. Banks are encouraged to consider additional factors; as data becomes richer the bank must refine and expand its internal analysis with the goal of developing progressively more compelling LGD criteria and analysis over time.

335. Where there are exceptional circumstances that render the LGD characteristics of an exposure unlike a “typical” exposure that meets the rating criteria, those responsible for assigning or reviewing the LGD grade assignment should adjust the assignment accordingly. Such adjustments should be made with a conservative bias, and generally should be made only when the exceptional circumstances would tend to increase the expected LGD. Instances of overrides must be clearly documented. A bank must track separately the performance of “overriden” grades.

(e) Minimum requirements for the estimation of LGD

336. A bank must estimate an LGD for each of its internal LGD grades. This estimate should be a conservative estimate of the average LGD over a sufficiently long period of time as discussed below. A bank is free to use more conservative estimates, such as LGDs associated with stress conditions, if they so choose.

337. Each estimate of LGD must be grounded in historical experience and empirical evidence. At the same time, these estimates must be forward looking. In meeting these requirements, banks may incorporate relevant adjustments based on a variety of factors. Such adjustments must be applied through a well-developed and well-documented thought process and analysis. These adjustments themselves should be based on available empirical evidence and other historical information such as a material change in loss rates or in the key drivers of future loss. Where adjustments are made, the bank must ensure that such adjustments are applied conservatively and consistently over time. LGD estimates that are based purely on subjective or judgmental consideration and not grounded in historical experience and data will be rejected by supervisors.

Estimation using reference definition of default and loss

338. Consistent with the estimation of PD in the foundation approach, banks must use the reference definition of default articulated in paragraphs 271 and 272 in estimating LGD and collecting loss or recovery data.

339. The definition of loss used in estimating LGD is economic loss. This should include discount effects, funding costs, and direct and indirect costs associated with collecting on the instrument in the determination of loss. Banks should not simply measure the loss recorded in accounting records, although they should be able to compare the two.

340. Banks must document the specific definition of default and loss used internally, and demonstrate their consistency with the reference definitions. Additionally, the specific definition of default used in the estimation of PD and LGD must be consistent.

Data sources and process for estimation

341. A bank must consider all relevant and available data in estimating LGD. This data must be robust. A bank may utilise internal data or data from external sources (including pooled data), provided a strong link can be demonstrated between the key characteristics of the exposures to which the estimates are being applied and those captured by the external source, and the bank can demonstrate that the LGD estimates are consistent with the bank's lending standards. The definition of default retained in respect of the external data source must be consistent with the reference definition of default. For internal data, the bank must demonstrate that its estimate of LGD is representative of long run experience. Any changes in lending practice or the process for pursuing recoveries over the observation period should be taken into account.

342. The bank must also demonstrate that the economic or market conditions that underlie the data are relevant to current and foreseeable conditions. The number of exposures in the sample and the data period used for quantification must be sufficient to provide a strong grounding in historical experience in the accuracy and robustness of its LGD estimates. Estimates of LGD must be based on a minimum data observation period that should ideally cover a complete economic cycle but must in any case be no shorter than a period of seven years.

343. Estimates of LGD must have a cautious bias. The more data on which these estimates are based, the more confidence the bank can have that they are representative of long run average loss rates. Thus, this bias may be less when empirical evidence is most convincing. Where only limited data is available, underwriting or collateral management standards have changed or where estimates of LGD for certain transaction types are known to be volatile, this bias needs to be more conservative. In particular, for exposures in respect of which LGD estimates are volatile over the economic cycle, the bank should consider the effects of the state of the economic cycle on its current estimates of LGD. If a positive correlation can reasonably be expected between the frequency of observed defaults and the severity of LGD, the estimate should be adjusted with a conservative bias. Additionally, if there are any residual risks that are not reflected in the bank's data or LGD estimates, the bank's estimate of LGD must be adjusted accordingly with a conservative bias.

344. A is bank responsible for determining the appropriate techniques for how collateral is factored into its LGD estimates, and for demonstrating the appropriateness of these techniques to supervisors. Where collateral plays a significant role in the LGD estimate, the bank must consider the following issues:

- In its analysis, the bank must consider the extent of any dependence between the risk of the borrower with that of the collateral or collateral provider. Cases where there is a high degree of dependence, for example securities issued by the collateral provider or any related group entity, must be addressed in a conservative manner.
- Any currency mismatch between the underlying obligation and the collateral must be considered and treated conservatively in the bank's assessment of LGD. Transfer risk must also be treated accordingly.
- As appropriate to its estimation techniques, the bank must adopt a conservative perspective when valuing collateral and assessing the length of the workout period.
- As appropriate to its estimation techniques, where the value of the collateral may change for reasons other than changes in market prices, such as blanket charges over the working capital assets of a firm, the bank must adopt a conservative treatment in the valuation of such collateral interests and must take steps to ensure that this valuation remains conservative. The bank must consider its ability to liquidate the collateral expeditiously where the collateral remains in the possession and under the control of the borrower. Where residual risk remains, the bank must reflect this through applying conservatism in its loss estimates.

345. Banks are continuously required to have LGD estimates that are properly calibrated, and which incorporate new information promptly as it becomes available. At a minimum banks should review the LGD estimates on an annual basis.

(f) Data Collection and IT systems

346. Banks must collect sufficient data to be able to meet all other requirements set forth in this section, in particular in respect of the assignment of exposures to LGD categories, the quantification and internal validation of LGD estimates, the use to which those estimates are put and the core disclosure requirements.

347. Banks must collect and track realised recovery rates by LGD grade. Banks are also encouraged to monitor this information by the component of loss or recovery for each exposure, such as direct loss, time period required for recovery, and administrative costs. Banks must have an IT infrastructure which is sufficient to support data collection and other aspects of the assignment of exposures to LGD categories and the derivation of loss estimates.

(g) Use of LGD Estimates

348. Banks must use and rely upon estimates of LGD as a direct input to well-established risk measurement and management processes.

349. Estimates of LGD must be used within the pricing of credit risk. The cost of credit should reflect information from both the borrower and LGD ratings. This information should, in turn, be used as a factor in the pricing of the exposure.

350. The distribution of exposures across internal rating grades and the associated LGD must be embedded in the reporting to senior management.

351. LGD estimates must be explicitly linked with the bank's internal assessment of capital adequacy, in line with the requirements of Pillar 2.

352. The bank's internal ratings and associated LGD estimates must be considered in the process of reserving. The bank should have clearly articulated policies with respect to the treatment of expected loss.

353. The LGD associated with an internal grade must be used as input to the bank's profitability analysis.

354. If a bank has a credit risk model that is part of its profitability analysis and/or internal capital allocation, the estimated LGD characteristics must also be an important input into this model.

355. A bank must have a credible track record in the use of LGD information. Thus, the bank must demonstrate that it has been estimating and employing LGDs in a manner that was broadly in line with the minimum requirements for own estimates of LGD articulated in this document for at least the last three years. This requirement is not intended to place a moratorium on the bank's efforts to amend and improve its rating system.

(h) Internal Validation

356. A bank must have a robust system in place to attest the accuracy and consistency of its internal estimates of LGD. At a minimum, the bank must regularly compare realised loss rates with estimated LGDs, and be able to demonstrate that realised loss experience is in line with expectations. The methods and data used in such analysis must be clearly documented and well understood by the bank. This analysis must be conducted frequently and, at a minimum, annually. Such comparisons should at least make use of historical data periods that are as long as possible.

357. Banks should make use of other quantitative validation tools. The analysis should be based on data that are appropriate to the portfolio, are updated regularly and cover a relevant observation period. Banks' internal assessments of the performance of their own rating systems should be based on long data histories, covering a range of economic environments, and ideally a complete business cycle.

358. Banks must demonstrate that the quantitative testing methods and data are consistent through time; changes in methods and data (both data sources and the periods covered) must be clearly and thoroughly documented.

359. Banks must have well-articulated internal standards for situations where significant deviations in realised losses from expected loss rates become significant enough to call estimates into question. These standards will need to take account of business cycles and

similar systematic variability in LGD. Where significant deviations in expected and realised loss rates continue to exist, banks should adopt more caution in their estimates of LGD.

360. Banks must undertake plausibility tests on their LGD estimates through a comparison with external data sources.

361. Banks must have in place sound stress testing processes for evaluating their estimates of LGD. An independent unit must carry out stress tests, which must be conducted at least every six months. Stress testing must involve identifying possible events or future changes in economic conditions that could have unfavourable effects on banks' LGD estimates and the effect these might have on their overall capital adequacy. Three areas that banks might usefully examine are: (i) economic or industry downturns; (ii) market-risk events; and (iii) correlation in estimates of PD and LGD across exposures.

362. Whatever the method of stress testing used, the results of the tests must be thoroughly documented, reported to senior management and appropriate action must be taken in cases where the results exceed agreed tolerances.

(i) Public disclosure of LGD and related data

363. Banks must meet the minimum requirements for disclosure under the advanced approach to LGD set out in paragraph 652, and paragraphs 653 to 658 as applicable.

(j) Specific issues in respect of the treatment of collateral

364. Where a bank takes collateral, and this collateral is taken into account in the bank's internal estimate of LGD, it must establish internal requirements for legal certainty and risk management process that are, at the least, consistent with those required for the standardised and foundation approaches. The exception is the treatment of correlation, which is addressed separately in the minimum requirements for estimation. Similarly, a bank's internal requirements must also be, at the least, consistent with the operational requirements and additional collateral management requirements for physical collateral in the foundation approach listed in paragraphs 316 to 321. Banks must have robust operational procedures to address the risks that may arise when they take collateral. These include:

- having a strategy which specifies a clear and consistent policy for the taking of collateral;
- ongoing consideration of the creditworthiness of the underlying credit;
- robust collateral management systems to ensure that the bank can track the existence of collateral and the value assigned to it;
- the bank must consider any concentration in collateral (in respect of specific collateral providers, instruments, sectors or collateral types) in its analysis of the value of the collateral;
- the bank's credit policies must also cover the bank's assessment of the appropriate amount of each type of collateral relative to the exposure amount for recognition to be provided. Credit policies must also cover the ability of the bank to liquidate the collateral readily, the ability to establish objectively a price or market value, the frequency with which the value can readily be obtained and the volatility of the value of the collateral;
- where residual risk remains, the bank must reflect this through applying conservatism in its loss estimates.

365. As appropriate to its estimation techniques, the bank must have clearly defined internal standards in respect of the range of financial collateral it will recognise, the mechanisms by and frequency with which that collateral is valued and how it deals with any subsequent volatility in the value of the collateral (for example margining). When taking physical collateral, banks must have clearly defined policies outlining the types of physical collateral they recognise in their internal assessments of LGD.

(ii) Minimum requirements for use of own EAD estimates

366. EAD for an on-balance sheet or off-balance sheet item is defined as the expected exposure of the facility upon default of the obligor, as detailed below.

367. For on-balance sheet items, under both the foundation and advanced approaches, banks must estimate EAD at no less than the current drawn amount, subject to recognising the effects of on-balance sheet netting as recognised in the foundation approach. The minimum requirements for the recognition of netting should be the same as under the foundation approach. For the time being, no bank will be permitted to use its own estimates of credit equivalent amounts of interest rate, foreign exchange, equity and commodity derivatives – instead the current matrix of add-ons will continue to apply.

368. The additional minimum requirements for internal estimation of EAD under the advanced approach therefore focus on the estimation of EAD for off-balance sheet items (excluding derivatives).

(a) EAD dimension

369. Banks must have established procedures in place for the estimation of EAD on off-balance sheet items. These must specify the estimates of EAD to be used for each facility type. Where estimates of EAD differ by facility type, the delineation of these facilities should be clear and unambiguous.

(b) Completeness and integrity of EAD assignments

370. Broadly consistent with the minimum requirements set out for PD estimation, banks should ensure that all facilities are assigned an estimate of EAD. EAD estimates should be derived and/or reviewed by personnel independent of lending or business line functions.

(c) Oversight by board and senior management

371. The board of directors and senior management (see paragraph 248 for definition of these parties) must approve the process of developing EAD estimates, the estimates themselves, and the internal uses of these estimates. Also, the board should periodically receive reports comparing estimates of EADs with realised outturns. The role of internal and external audit, the independent credit risk control unit and the requirements with respect to the documentation of EAD estimates are consistent with those articulated for PD.

(d) Criteria for the derivation of EAD estimates

372. The criteria by which estimates of EAD are derived must be plausible and intuitive, and represent what the bank believes to be the material drivers of EAD. The choices must be

supported by credible internal analysis by the bank. The bank must be able to provide a breakdown of its EAD experience by the factors it sees as the drivers of EAD.

373. A bank must use all relevant information in its derivation of EAD estimates. Across facility types, a bank must review its estimates of EAD when material new information comes to light and at least on an annual basis.

374. A bank is expected to consider additional factors such as borrower risk characteristics, the original maturity of the commitment, covenants, frequency of account review and the means by which drawings can be made. Although a bank would not be required to consider such additional factors, as data becomes richer the bank must refine and expand its internal analysis with the goal of developing progressively more compelling EAD estimates over time.

(e) Minimum requirements for estimation of EAD

375. A bank must assign an estimate of EAD for each facility. An estimate of EAD must be forward looking, but must have some grounding in historical experience. It should be a conservative estimate of the average EAD over a sufficiently long period of time. Banks are free to use more conservative estimates of EAD if they so choose.

Estimation using reference definition of default

376. Consistent with the estimation of PD in the foundation approach, banks must use the reference definition of default articulated in paragraphs 271 and 272 in estimating EAD and collecting EAD data.

377. A bank must document the specific definition of default and loss used internally, and demonstrate its consistency with the reference definition. Additionally, the specific definition of default used in the estimation of PD and EAD must be consistent.

Data sources and process for estimation

378. Banks must consider all relevant and available data in estimating EAD. This data must be robust. A bank may utilise internal data or data from external sources (including pooled data), provided a strong link can be demonstrated between the bank's own EAD experience and that captured by the external source. The definition of default retained in respect of the external data source must be consistent with the reference definition of default. For internal data, the bank must demonstrate that its estimate of EAD is representative of long run experience. Any changes in lending practice or the process for pursuing recoveries over the observation period should be taken into account.

379. Regardless of the data source used, the population of exposures represented in the data used for quantifying EAD and lending standards underpinning it must be closely matched to or at least comparable with those of the bank. The bank must also demonstrate that the economic or market conditions that underlie the data are relevant to current and foreseeable conditions. The number of exposures in the sample, and the data period used for quantification must be sufficient to provide the bank with confidence in the accuracy and robustness of its EAD estimates. Estimates of EAD must be based on a minimum data observation period that should ideally cover a complete economic cycle but must in any case be no shorter than a period of seven years.

380. Estimates of long-run average EAD must have a cautious bias. The more data on which these estimates are based, the more confidence the bank can have that the estimates

are representative of long run average loss rates. Thus, this bias may be less when empirical evidence is most convincing. Where only limited data is available, underwriting or exposure management standards have changed or where estimates of EAD for certain transaction types are known to be volatile, this bias needs to be more conservative. If a positive correlation can reasonably be expected between the frequency of observed defaults and the severity of EAD, this should have a conservative bias on the EAD estimate.

381. Subjective and judgmental considerations should be used as a supplement to empirical analysis in developing and evaluating EAD estimates. Such considerations must be applied through a well-developed and well-documented thought process and analysis. The bank must ensure that such judgmental considerations are applied conservatively and consistently over time, particularly in terms of their magnitude and effect on empirical estimates. EAD estimates that are based purely on subjective or judgmental considerations rather than empirical analysis and data would not be recognised within the advanced approach.

382. Due consideration needs to be paid by the bank to its specific policies and strategies adopted in respect of account monitoring and payment processing. These include a consideration of its operational ability to block additional drawings once a potentially different area of the bank has identified a default event and put a stop on the account. The bank should also consider its ability and willingness to prevent further drawdown in scenarios short of default.

383. Banks are continuously required to have EAD estimates that are properly calibrated, and which incorporate new information promptly as it becomes available. At a minimum, banks should review the EAD estimates on an annual basis.

(f) Data collection and IT systems

384. Banks must collect sufficient data to be able to meet all other requirements set forth in this section, in particular in respect of the assignment of EAD estimates to facilities, the estimation and internal validation of EAD estimates, the use to which those estimates are put and the core disclosure requirements.

385. A bank must collect and track predicted and realised exposure amounts for each defaulted facility. It must have an IT infrastructure which is sufficient to support data collection and other aspects of the assignment of EADs to exposure types and the estimation of EAD. Additionally, the bank must demonstrate that its internal information systems correctly identify exposures as being of the applicable transaction EAD class.

386. The bank must have adequate systems and procedures in place to monitor limits, current outstandings against limits and changes in outstandings per borrower and per grade. The bank should be able to monitor outstanding balances on a daily basis.

(g) Use of EAD estimates

387. Banks must use and rely upon estimates of EAD as a direct input to well-established risk measurement and management processes.

388. The EAD estimates must be considered in the setting of internal (portfolio or sub-portfolio) limits.

389. The distribution of exposures across internal rating grades and the associated EAD must be embedded in the reporting to senior management.

390. EAD estimates must be explicitly linked with the bank's internal assessment of capital adequacy, in line with the requirements of Pillar 2.

391. The bank's EAD estimates must be considered in the process of reserving. The bank should have clearly articulated policies with respect to the treatment of expected loss.

392. The EAD associated with an internal grade must be used as an input to the bank's profitability analysis.

393. If a bank has a credit risk model that is part of profitability analysis and/or internal capital allocation, the estimated EAD characteristics must also be an important input into this model.

394. A bank must have a credible track record in the use of EAD information. Thus, the bank must demonstrate that it has been estimating and employing EADs in a manner that was broadly in line with the minimum requirements for own estimates of EAD for at least the last three years. This requirement is not intended to place a moratorium on amending and improving a bank's rating system.

(h) Internal Validation

395. A bank must have a robust system in place to attest to the accuracy and consistency of its internal estimates of EAD. At a minimum, the bank must regularly compare realised EADs with estimated EADs, and be able to demonstrate that observed EAD experience is in line with expectations. The methods and data used in such analysis must be clearly documented and well understood by the bank. This analysis must be conducted frequently and, at a minimum, annually. Such comparisons should at least make use of historical data periods that are as long as possible.

396. Banks should make use of other quantitative validation tools. The analysis should be based on data that are appropriate to the exposure class, are updated regularly and cover a relevant observation period. Banks' internal assessments of the performance of their own rating systems should be based on long data histories, covering a range of economic environments and, ideally, a complete business cycle.

397. Banks must demonstrate that the quantitative testing methods and data are consistent through time; changes in methods and data (both data sources and the periods covered) must be clearly and thoroughly documented.

398. The bank must have well-articulated internal standards for when significant deviations in realised from expected EAD rates become significant enough to call estimates into question. These standards will need to take account of business cycles and similar systematic variability in EAD. Where significant deviations in expected and realised EAD rates continue to exist, a bank should adopt more caution in its estimates of EAD.

399. Banks must undertake plausibility tests on their EAD estimates through a comparison to external data sources.

400. Banks must have in place sound stress testing processes for evaluating their estimates of EAD. An independent unit must carry out stress tests, which must be conducted at least every six months. Stress testing must involve identifying possible events or future changes in economic conditions that could have unfavourable effects on their EAD estimates and the effect these might have on its overall capital adequacy. Three areas that banks might usefully examine are: (i) economic or industry downturns; (ii) market-risk events; and (iii) correlation in estimates of PD and EAD across exposures.

401. Whatever the method of stress testing used, the results of the tests must be thoroughly documented, reported to senior management and appropriate action taken in cases where the results exceed agreed tolerances.

(i) Public disclosure of EAD and related data

402. Banks must meet the minimum requirements for disclosure under the advanced approach to EAD set out in paragraph 652, and 653 to 658 as applicable.

4. MINIMUM REQUIREMENTS FOR ASSESSMENT OF GUARANTORS AND SELLERS OF CREDIT DERIVATIVES

403. In addition to meeting all of the requirements for a borrower rating system outlined above, to be eligible for the advanced approach for guarantees and credit derivatives a bank must meet the following additional minimum requirements.

(i) Guarantees

404. A bank must have clearly specified criteria for the recognition of guarantees for regulatory capital purposes, such as the nature of entities it will recognise as guarantors. This proposal addresses banks' criteria for "notching" the grade assigned to guaranteed exposures to reflect the degree of risk mitigation from the guarantee (the so-called "substitution ceiling" treatment), whether embedded in the credit agreement (e.g. a guarantee from an owner or the parent of the borrower) or purchased from a third party (e.g. a standby letter of credit). These criteria must be as detailed as borrower rating criteria, and must follow all minimum requirements for assigning borrower ratings set out in this document, including the regular monitoring of the guarantor's condition and ability to honour its obligations. Based on such monitoring, the guarantor's rating must be revised as appropriate to changes in its financial condition or likely ability to perform on its obligations, as with any borrower.

(a) Rating system requirements

405. To be eligible for the "substitution ceiling" treatment, a bank must develop and record an adjusted borrower rating for exposures using the same rating scale as its borrower scale. Both the borrower and the guarantor must be assigned a borrower rating and must follow all minimum requirements for assigning borrower ratings set out in this document.

(b) Completeness and integrity of assessment of guarantees

406. Each guaranteed exposure must be assigned an adjusted borrower rating. Each individual rating assignment of adjusted borrower grades must be performed, or at least reviewed, by personnel independent of lending or business line functions. It is envisioned that this assignment or review would be conducted by the independent credit risk control unit(s) described in paragraph 255 to 256.

407. The requirement for independent assignment or review applies not only when the exposure is originally assigned such a rating, but also when an exposure is subsequently re-rated. The process by which that exposure is independently reviewed must be documented. It is envisioned that this process is in all material aspects identical to that of assigning a

borrower grade. The bank should have an effective process to obtain and update relevant financial and other relevant information of the borrower's and guarantor's financial condition and the guarantor's ability to fulfil its obligation, again consistent with the requirements for assignment and review of a borrower grade. Accordingly, the loan agreement and guarantee should require the borrower and guarantor to provide periodic financial information in a form that fully supports the ability of the bank to undertake a complete credit analysis of both parties.

(c) Criteria for risk assessment

408. In its assessment of the risk reducing effect of guarantees, a bank must consider the nature of the guarantee, the guarantor, and the extent to which residual risks remain.

409. In addition to the borrower ratings for the underlying borrower and the guarantor, the assignment of an adjusted borrower grade must be based on a specific process and explicit criteria. These criteria should be specific enough to allow a third-party assessment of an exposure, should demonstrate an ability to differentiate degrees of credit risk mitigation provided by guarantees and be both plausible and intuitive in order to ensure that rating criteria are designed to distinguish risk and not merely to minimise regulatory capital requirements. The standards and reference points established in the criteria should reflect a critical assessment of historical experience with comparable transactions and counterparties.

410. Banks should carefully document the source and critical decision points that led to the choice of their internal rating criteria. The chosen standards and references should be periodically reviewed by the internal credit risk management unit(s) to determine whether they remain fully applicable to current counterparties and transactions as well as current external conditions.

411. The adjustment criteria must describe the key characteristics of a guarantee that relate to its risk-reducing effects, including the nature of the guarantee, the guarantor's characteristics and the extent to which the terms and nature of the guarantee leave room for uncertainty about the ability and willingness of the guarantor to fulfil its obligations. As a general principle, these criteria must be as detailed as borrower rating criteria.

412. Building on the borrower ratings for the borrower and guarantor, the criteria must evaluate the strength of the guarantee itself. This requires consideration of structure of the guarantee – degree of coverage, obligation to meet borrower's repayment obligations versus to repay the loan in full, legal enforceability, restrictions, maturity and similar considerations. The guarantee must be evidenced in writing, non-cancellable on the part of the guarantor, unconditionally in force until the debt is satisfied in full (to the extent of the amount and tenor of the guarantee) and legally enforceable against the guarantor in a jurisdiction where the guarantor has assets to attach and enforce a judgement. As such comfort letters which provide for implicit support should not be recognised. For guarantees subject to side agreements prescribing conditions under which the lender agrees to release the guarantee to be recognised, the onus is on the bank to demonstrate that the assignment criteria adequately addresses any potential reduction in the risk mitigation effect. Similarly, guarantees would be excluded that include embedded options under which the guarantor may or may not be obliged to perform.

413. Where the guarantee and the underlying exposure are denominated in a different currency, the bank must assess the potential exposure arising from exchange rate fluctuations, and factor this into its estimation of the risk reduction effect.

414. The criteria should also address that the documentation underpinning the guarantee provides that the guarantor or protection seller compensates the lender in a timely manner following the credit event specified in the contract.

415. The criteria must also address the degree to which the guarantor's ability to perform under the guarantee will closely follow that of the borrower. It must consider an explicit assessment of the guarantor's likely willingness to perform under the guarantee, should that be needed. Relevant considerations include whether the guarantor has not satisfied its obligations in the past, as well as the strength of the business connection between the guarantor and borrower.

416. The bank's criteria must also consider the extent to which any residual risk to the borrower remains that the risk of the transaction is greater than the default risk of the guarantor. This may be in respect of uncertainty over the adequacy of the documentation (e.g. it may never have been tested), situations in which the borrower and the guarantor are located in different jurisdictions or conditional clauses in the guarantee itself. The bank should seek to ensure that these residual risks are addressed through its criteria for the acceptance of guarantees and guarantors, and/or the degree of conservatism adopted in estimating the risk mitigating benefit of the guarantee.

417. Where there are exceptional circumstances that render the characteristics of a guaranteed exposure unlike a "typical" exposure that meets the rating criteria, or where risks are evident that are not reflected in the specific borrower or adjusted borrower rating criteria, those responsible for assigning or reviewing the adjusted borrower grade should adjust the grade accordingly. In general, such adjustments should be made with a conservative bias, and generally should be made only when the exceptional circumstances would tend to increase the degree of risk (i.e. move the exposure to a grade associated with a higher PD). Such overrides must be documented and tracked.

418. Criteria may in no case assign to the guaranteed exposure an adjusted borrower grade more favourable than the higher of the borrower's or guarantor's rating. Similarly, neither criteria nor rating processes are permitted to consider possible favourable effects of imperfect expected correlation between default events for the borrower and guarantor for purposes of regulatory minimum capital requirements.

(ii) Credit Derivatives

419. The minimum requirements for guarantees are relevant also for single-name credit derivatives.[34] Additional considerations arise in respect of the extent of residual risk. This can arise through asset mismatches. The criteria used for assigning adjusted borrower grades for exposures hedged with credit derivatives must require that the asset on which the protection is based (the reference asset) cannot be different from the underlying asset, unless the conditions outlined in the foundation approach are met:

- the reference and underlying assets are issued by the same obligor (i.e. the same legal entity); and
- the reference asset ranks *pari passu* or more junior than the underlying assets, and legally effective cross-reference clauses (e.g. cross-default or cross-acceleration clauses) apply.

[34] The Committee will consider how to develop an appropriate treatment for basket products.

420. In addition, the criteria must address the payout structure of the credit derivative and conservatively assess the impact this has on the level and timing of recoveries.

421. The bank must also consider the extent to which residual risk in the form of documentation or legal risk remains from untested documentation or customised or unique credit derivative products. The bank must seek to ensure that these residual risks are dealt with through an appropriate combination of criteria for the acceptance of credit derivative products and credit protection sellers and/or through adopting a conservative view of the risk mitigating benefit of the credit derivative.

C. RULES FOR RETAIL EXPOSURES

1. RISK WEIGHTED ASSETS FOR RETAIL EXPOSURES

422. This section sets out the derivation of IRB risk weighted assets for those exposures that meet the definition of "retail" set out in paragraph 156. The risk weights presented below should be seen as illustrative or indicative and should not be viewed in the same manner as those described above for corporate exposures. The calibration of these risk weights and the Committee's reservations are expressed in the *Overview to the New Basel Capital Accord* and in the Supporting Document, *The Internal Ratings-Based Approach to Credit Risk.*

423. Throughout this section, PD, LGD and EAD are expressed as whole numbers, rather than decimals, except where explicitly noted otherwise. For example, LGD of 100% would be input as 100.

(i) Formula for derivation of risk weights

424. Retail exposures will receive a risk weight that depends either on PD and LGD or on the expected loss (EL) of the exposure (after recognising any credit enhancements from collateral, guarantees or credit derivatives). The risk weight for a retail exposure would not depend on the maturity (M) of the exposure. Throughout this section, LGD, PD and EAD are measured as whole numbers except where explicitly noted otherwise. For example, LGD of 100% would be input as 100. The exception is in the context of the benchmark risk weight (BRW) - see paragraphs 426. In these equations, PD is measured as a decimal (e.g. a 1% probability of default would be represented as 0.01).

425. A risk weight will be assigned to each exposure reflecting the PD and LGD of the exposure based on the following formula:

$$RW_R = (LGD/50) \times BRW_R(PD), \text{ or } 12.5 \times LGD, \text{ whichever is smaller.}$$ [35]

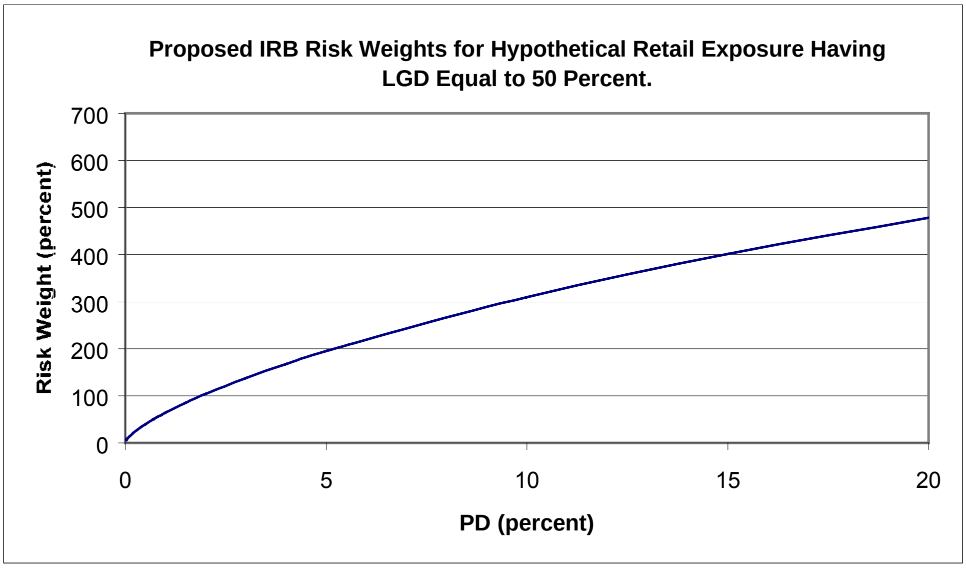
426. In this expression, RW_R denotes the risk weight associated with given values of PD and LGD for retail exposures, while BRW_R denotes the retail benchmark risk weight associated with a given PD, which is calibrated to an LGD of 50%. The BRW_R is assigned to each exposure reflecting the PD of the exposure based on the following equation: **In this equation, PD is expressed as a decimal – e.g. a PD of 10% would be input as 0.1.**

[35] The purpose of the cap is to ensure that no risk weight can be more penal than would be the effect of deducting the exposure from capital.

$$\text{BRW}_R(\text{PD}) = 976.5 \times N\,(1.043 \times G\,(PD) + 0.766) \times (1 + .0470 \times (1 - PD) / PD^{0.44})$$

where $N(x)$ denotes the cumulative distribution function for a standard normal random variable (i.e., the probability that a normal random variable with mean zero and variance of one is less than or equal to x), and where $G(z)$ denotes the inverse cumulative distribution function for a standard normal random variable (i.e. the value x such that $N\,(x) = z$).

427. A graphical depiction of these risk weights given combinations of PD, calibrated to a 50% LGD, is presented below:



428. Representative values for the above risk weights are presented in the table below:

PD(%)	BRW_R
0.03	6
0.05	9
0.1	14
0.2	21
0.4	34
0.5	40
0.7	50
1	64
2	104
3	137
5	195
10	310
15	401
20	479
30	605

429. Risk weights for retail exposures are based on separate assessments of PD and LGD as inputs to the risk weight function. As the Committee will also allow a direct estimate of EL as a risk input (see below), a mechanism by which such an estimate can be translated

into the PD-LGD risk weights structure is required. The Committee intends to work on this further during the consultative period. This issue is explored further in the Supporting Document, *The Internal Ratings Based Approach to Credit Risk.*

430. At this time, the risk weights for all retail exposures would be determined by a common formula that relates an exposure's risk characteristics (either PD and LGD or EL) to a corresponding risk weight - this risk weight would apply across all product types in the retail exposure class. The Committee is considering if different risk weight formulae would be appropriate for different product types.

(ii) Risk inputs

431. There are two broad families of risk-inputs for retail portfolios. Both rely upon banks providing their own internal estimates of these risk inputs. As such, and in contrast to the approach taken for corporate exposures, there is no foundation approach for retail IRB.

432. For each identified risk segment, banks are expected to provide one or the other of the following. Minimum requirements in respect of the identification of risk segments are outlined in paragraphs 439 to 453.

(a) Separate PD and LGD

433. Under this option, banks provide internal estimates for each risk segment of both the average PD and LGD of exposures within that segment. The minimum requirements for the derivation of PD and LGD estimates associated with each risk segment are outlined in paragraphs 462 to 472.

(b) Estimate of expected loss

434. Under this option, an estimate of the Expected Loss (EL) associated with each risk segment is required. EL is defined as the product of PD and LGD. While the bank must provide an internal estimate of EL, it need not, under this option, be able separately to identify the underlying PD and LGD of exposures within each risk segment. The minimum requirements for the derivation of EL estimates for each risk segment are outlined in paragraphs 462 to 472.

(c) Exposure measurement

On-Balance Sheet Items

435. As with corporate exposure, retail exposure is measured as the nominal outstanding balance for on-balance sheet items. On-balance sheet netting of loans and deposits of a bank to or from a retail customer will be permitted subject to the same conditions as under the standardised approach.

Off-balance sheet items

436. Banks are permitted to use their own estimates of credit conversion factors on retail off-balance sheet items. Banks need not apply a conversion factor for undrawn amounts for products that are unconditionally cancellable, such as credit cards, or for uncommitted lines,

or for facilities which effectively provide for automatic cancellation due to a deterioration in the borrower's credit worthiness at any time by the bank without prior written notice.

FX and Interest Rate Commitments

437. To the extent that such exposures exist within a bank's retail portfolio for IRB purposes, banks will not be permitted to provide their internal assessments of credit equivalent amounts. Instead, the rules for the standardised approach will continue to apply.

2. MINIMUM REQUIREMENTS FOR RETAIL EXPOSURES

(i) Composition of minimum requirements

438. Banks must meet certain minimum requirements at the outset and on an ongoing basis to be eligible for the retail IRB approach. The section below sets out these minimum requirements. Many of these are identical to the minimum requirements that underpin the IRB approach for corporate exposures – as such, they are cross-referenced to the relevant part of section B-2. There are, however, important differences in some respects, which reflect the particular characteristics of retail portfolios. These differences, and additional requirements over and above (or in lieu) of requirements for corporate exposures are set out below.

(ii) Criteria to ensure a meaningful differentiation of risk

439. The corporate exposure minimum requirements for meaningful differentiation of risk are replaced with the following requirements:

440. Rating systems for retail exposures must be oriented to both borrower and facility risk, and must capture all relevant borrower and facility characteristics. This requirement differs from that for corporate exposures, and reflects the predominant industry practice for retail exposures of combining both borrower and facility characteristics in the assessment of the risk of a segment.

441. Banks must allocate each exposure that falls within the definition of "retail" for IRB purposes into a particular risk segment. Banks must demonstrate that the level of segmentation adopted internally provides for a meaningful differentiation of risk, provides for a grouping of sufficiently homogenous pools of loans and ensures that the risk characteristics of the underlying pool of loans are relatively stable over time, and can be separately tracked. The orientation of this segmentation should be towards the risk of both the borrower and the transaction.

442. Once a risk segment has been identified, banks should treat all borrowers and transactions in that segment in the same manner with respect to underwriting and structuring of the loans, economic capital allocation, pricing and other terms of the lending agreement, monitoring, and internal reporting. This serves to demonstrate the risk homogeneity of exposures within each segment.

(a) Minimum requirements for segmentation

443. A bank is expected to segment its retail exposures on the basis of the following four techniques. The first two must be met by all banks. The latter two must also be met by banks unless a bank demonstrates to its supervisor that such an additional level of segmentation is not appropriate given the nature of its retail exposures or the size of its operations.

Segmentation by product type

444. The bank must at a minimum segment its retail exposures by the following product types, subject to *materiality*:[36]

- credit cards;
- instalment loans (e.g. personal loans, auto finance, leasing);
- revolving credits (e.g. overdrafts);
- residential mortgages; and
- small business facilities.

Segmentation by borrower risk

445. The bank must segment by credit scores or equivalent. This includes segmentation based on application scoring (score based on full information in a credit application).[37]

Segmentation by delinquency status

446. Banks are expected to separately identify loans that are delinquent and those that are not. At a minimum, there should be at least two distinct and identifiable categories for pools of loans that are in arrears. Banks which do not provide this level of segmentation will need to satisfy their supervisor that this is not a material driver or predictor of risk in their retail portfolios. Banks not segmenting by delinquency must collect sufficient data on this risk driver to enable them to periodically assess whether delinquency is material enough to warrant segmentation.

Segmentation by vintage

447. To capture the effects of seasoning, banks are expected to segment based on the vintage of exposures (the time at which the transaction was put on the books). The maximum length of the vintage period should be no more than one year. Banks which do not segment some or all of their retail exposures by vintage will need to satisfy their supervisor that vintage is not a material driver or predictor of risk in their retail portfolios. Banks not segmenting by vintage must collect sufficient data on this risk driver so as to enable them to periodically assess whether vintage is material enough to warrant segmentation.

[36] For example, if a bank does not engage in credit card activity, it does not need to segment by this product type.

[37] Ongoing or "behavioural" scoring (based on credit bureau data or bank's own internal data) should be used as a basis for reassessing the estimates of loss associated with each segment, rather than as a basis for segmentation.

(b) Additional segmentation

448. Banks are permitted to use additional techniques for segmentation for some or all of their retail exposures. Examples include:

- different levels of LTV measures for secured loans;
- marketing and distribution techniques (e.g. affinity cards for target markets, gold/premium cards);
- borrower-type/demographics (occupation, age, etc.);
- loan size;
- maturity (e.g. 10 year mortgages, 30 year mortgages).

449. Banks that segment their retail exposures on the basis of these risk characteristics will need to satisfy their supervisors that such segmentation provides for a meaningful differentiation of risk.

(c) Number of exposures within a segment

450. For each segment identified, the bank must be able to provide a quantifiable measure of loss characteristics (both PD and LGD, or EL) for that segment. Therefore, the level of segmentation for IRB purposes must ensure that the number of loans in a given segment is sufficient so as to allow for reasonable power in the statistical tests used to quantify segment-based loss concepts.

451. There should be a meaningful distribution of borrowers and exposures across retail segments. No single risk segment should include an undue concentration of the bank's total retail exposure.

(d) Criteria in allocating exposures to segments

452. A bank must have specific criteria for slotting an exposure into a segment. The bank must demonstrate that its criteria cover all factors that are relevant to the analysis of risk. These factors should demonstrate an ability to differentiate risk, have predictive and discriminative power, and be both plausible and intuitive and reveal stability within the contemplated rating scheme.

453. Banks should take all relevant information into account in assigning exposures to a segment. This information should be current. The methodologies and data used in assigning exposures to a segment should be clearly specified and documented.

(iii) Completeness and integrity of rating assignments

(a) Coverage of ratings

454. Upon origination, each borrower must be assigned to a risk segment.

(b) Independent review

455. On an ongoing basis, a bank must monitor its portfolio to determine if an exposure is in the right segment and if the segment risk loss characteristics have changed. This monitoring should identify emerging trends or “early warning” signs.

456. At a minimum, a bank must review the performance (loss characteristics) and delinquency status of each identified risk segment on an annual basis. It should also review the status of individual borrowers within each risk segment as a means of ensuring that exposures continue to be assigned to the correct segment. This requirement may be satisfied by review of a representative sample of exposures in the segment.

457. Where banks have established scoring methodologies or risk assessment criteria, cases of overrides of these criteria must be exceptional. Where overrides have been granted, these exposures should be subject to detailed scrutiny on an ongoing basis, separate from the sampling process.

(iv) Oversight over rating system and processes

458. The corporate exposure requirements outlined in paragraphs 248 to 257 apply in their entirety and without modification.

(v) Criteria on orientation of rating system

459. Banks must have a specific process and criteria for assigning an exposure to a risk segment. This should generally be done on the basis of uniform criteria or a scorecard applied to all borrowers in a portfolio or a homogeneous segment thereof. These criteria should be specific enough to allow a third party assessment of the assignment of an exposure to a particular risk segment, should demonstrate an ability to differentiate risk and should be both plausible and intuitive.

(a) General rules on risk assessment process

460. The requirement in respect of corporate exposures applies without modification.

(b) Time horizon

461. The requirement in respect of corporate exposures applies without modification.

(vi) Requirements for estimation of EAD, and either (a) PD/LGD or (b) EL

462. Banks must provide an explicit estimate of both PD and LGD, separately identified, or EL, for each segment. With respect to the notion of LGD or EL, loss is to be understood as economic loss. This means to include discount effects, funding costs, and direct and indirect costs associated with collecting on the instrument in the determination of loss. Banks should not simply measure the loss recorded in accounting records, although they should be able to compare the two. In addition, a bank must provide an explicit estimate for the exposure amount for each transaction (commonly referred to as Exposure at Default (EAD) in banks’

internal systems). All these loss estimates should seek to fully capture the risks of an underlying exposure.

463. For retail products with uncertain future exposures such as credit cards, banks would be required to take into account their history and/or expectation of additional drawings prior to default in their overall calibration of loss estimates (EL or LGD). In particular, where a bank does not reflect conversion factors for undrawn lines in its EAD estimates, it would be expected to reflect in its LGD estimates the likelihood of additional drawings prior to default.

464. These estimates must be based on a long-run average, but should also contain a forward-looking element.

(a) Estimation using reference definition of default

465. Banks must use the following regulatory reference definition of default in estimating these loss measures and collecting default data from their own experience. Banks may utilise different definitions of default across different retail products, although all internal definitions must be consistent with the reference definition. An external data set used for estimating these measures must also be consistent with this definition. This reference definition is not intended in any way to affect banks' legal rights and remedies should a borrower fail to meet its obligations under a credit agreement, nor is intended to establish or alter accepted accounting requirements. It is intended solely to address issues related to consistent estimation of IRB loss characteristics across banks and data sources for use in regulatory capital calculations.

466. A default is considered to have occurred with regard to a particular obligor when **one or more** of the following events has taken place:

- it is determined that the obligor is unlikely to pay its debt obligations (principal, interest, or fees) in full;
- a credit loss event associated with any obligation of the obligor, such as a charge-off, specific provision, or distressed restructuring involving the forgiveness or postponement of principal, interest, or fees; any reaging of a facility (e.g. extending the life of a mortgage to reduce monthly payments) is regarded as a default event, so long as such reaging is undertaken in distressed circumstances to mitigate a default event;
- the obligor is past due more than 90 days on any credit obligation; or
- the obligor has filed for bankruptcy or similar protection from creditors.

467. Banks must document the specific definition of default used internally, and demonstrate its consistency with the above reference definition.

(b) Overall PD/LGD or EL estimation requirements

468. Banks should consider all available information for estimating average PD and LGD or EL ("the loss characteristic") per segment, including the three specific techniques set out in the PD estimation requirements (internal loss experience, mapping to external data, and statistical loss models). Given the bank-specific basis of segmentation, banks should regard internal data as the primary source of information for estimating loss characteristics. Banks are permitted to use external data or statistical models for quantification provided a strong link can be demonstrated between the bank's basis of segmentation and risk profile. In all cases banks should use all relevant data sources as points of comparison.

469. Banks must recognise the importance of judgmental considerations in this process, particularly in ensuring a forward-looking estimate of loss characteristics. Such judgement must be applied with a conservative bias. The degree of conservatism must be generally consistent over time.

470. For all methods of estimating loss characteristics the following requirements must be met:

- the population of exposures represented in the data set is closely matched or at least clearly comparable to those of the contemplated segment;
- the lending or underwriting requirements used to generate the exposures in the data source are strongly comparable to those used by the bank in populating its current segments;
- economic or market conditions under which the historical experience took place is relevant to current and foreseeable conditions; and
- the number of the loans in the sample, and the data period used for quantification, provide banks with confidence in the accuracy and robustness of the loss characteristics and the underlying statistical analysis.

471. Banks are continuously required to have estimates of loss characteristics that are properly calibrated, and which incorporate new information promptly as it becomes available. At a minimum, banks should review these estimates on a yearly basis.

472. Irrespective of whether banks are using external, internal, pooled data sources, or a combination of the three, for their estimation of loss characteristics, the length of the underlying historical observation period used must be at least five years. If the available observation period spans a longer period, this longer period should be used.

(vii) Data collection and documentation

473. For retail portfolios, a complete history of the risk assessment for each borrower or each borrower segment must be stored. Specifically, banks must collect and store data on:

- segment characteristics, including the product characteristics used for segmentation, borrower characteristics used for segmentation, vintage, and delinquency status; and
- the quantified risk characteristics associated with each segment (the probabilities of default, loss given default, or expected losses associated with segments). For each of these loss concepts, the bank should collect and store the predicted and actual measures.

474. All other requirements in respect of data collection are as outlined in paragraphs 284 to 288 of the corporate exposure minimum requirements.

(viii) Use of internal ratings

475. The use tests set out for corporates will be applied to retail, with the following modification:

476. Loss estimates associated with internal ratings must be used within the pricing of credit risk, within the limitations imposed by anti-discriminatory laws or regulations in each country.

(ix) Internal validation

477. The minimum requirements outlined for corporate exposures in terms of PD, LGD and EAD apply for retail exposures. The Committee will be developing its proposals for internal validation of EL estimates during the consultative period.

(x) Disclosure requirements

478. In order to be eligible for the IRB approach for retail exposures, banks must meet the disclosure requirements for retail IRB set out in Pillar 3 (see paragraphs 652, and 653 to 658 as applicable). These are minimum requirements in respect of IRB - failure to meet these will render banks ineligible for the retail IRB approach.

D. RULES FOR SOVEREIGN EXPOSURES

1. RISK WEIGHTED ASSETS FOR SOVEREIGN EXPOSURES

(i) Derivation of risk weights

479. The calculation of risk weights for sovereign exposures is exactly the same as for corporate exposures.

(ii) Inputs to the risk weight function

(a) Probability of default

480. The probability of default of an exposure is the one associated with the internal borrower grade to which that exposure is assigned. The 0.03% floor on corporate PD estimates does not apply for sovereign exposures. The minimum requirements for the derivation of the PD estimates associated with each internal borrower grade are consistent with those for corporate exposures.

(b) Loss given default

481. As with the corporate exposures, there are two approaches to estimating LGD – a foundation and an advanced approach.

482. In the foundation approach, the figures for subordinated loans (75%), and senior claims on sovereigns without specifically recognised collateral (50%) are the same as those for corporate exposures.

483. The list of eligible collateral and the methodology for recognising eligible collateral under the foundation approach is also the same as that for corporate exposures. Estimation

of the haircuts (*H*) and factors for residual risks (*w*) are consistent with those in standardised approach.

(c) Maturity

484. The assessment of maturity for sovereign exposures is the same as for corporate exposures.

(d) Exposure measurement

485. The estimation of sovereign exposure is the same as with corporate exposures.

2. MINIMUM REQUIREMENTS FOR SOVEREIGN EXPOSURES

486. Banks, subject to the following modifications and additions, must meet the minimum requirements for corporate exposures articulated in sections 2.

487. The modifications and additions are as follows:

(i) Rating grade structure

488. The maximum ceiling of 30% of exposure within a grade does not apply.

(ii) Rating criteria

489. Banks must meet the following additional minimum requirements for assessing sovereign exposures.

490. As with corporates, banks must assess all relevant factors in assigning an internal rating. This includes an analysis of the factors listed in paragraph 265, for corporates. In addition, there must be an ongoing monitoring of economic and political developments in the countries rated. The political dimension must include the possibility that a sovereign might be unable or unwilling to repay its obligations, or may not have access to foreign currency.

491. Forecasts should be conducted for key macroeconomic variables (e.g. GDP growth, exports, imports, external debt, external current account, and fiscal balance), which must be taken into account as a key input in the rating assignment of a sovereign.

492. Banks must use information on spreads from traded securities.

(iii) Oversight over rating system and process

493. Sovereign rating should be performed by specialists and by an independent unit from the front office.

(iv) Requirements for use of own estimates of LGD under the advanced approach

494. Banks must separately assess the different loss characteristics of domestic and foreign currency lending to sovereigns.

E. RULES FOR BANK EXPOSURES

1. RISK WEIGHTED ASSETS FOR BANK EXPOSURES

(i) Derivation of risk weights

495. The calculation of risk weights for bank exposures is exactly the same as for corporate exposures.

(ii) Inputs to the risk weight function

(a) Probability of default (PD)

496. The probability of default of an exposure is the greater of the one associated with the internal borrower grade to which that exposure is assigned, or 0.03%. The minimum requirements for the derivation of the PD estimates associated with each internal borrower grade are consistent with those for corporate exposures.

(b) Loss given default (LGD)

497. As with the corporate exposures, there are two approaches to estimating LGD – a foundation and an advanced approach.

498. In the foundation approach, the figures for subordinated loans (75%), and senior claims on banks without specifically recognised collateral (50%) are the same as those for corporate exposures.

499. The list of eligible collateral and the methodology for recognising eligible collateral under the foundation approach is also the same as that for corporate exposures. The estimation of the haircuts (*H*) and factors for residual risks (*w*) are consistent with those in standardised approach.

(c) Maturity

500. The assessment of maturity for bank exposures is the same as for corporate exposures.

(d) Exposure measurement

501. The estimation of bank exposure is the same as with corporate exposures.

2. MINIMUM REQUIREMENTS FOR BANK EXPOSURES

502. Exposures to banks must meet the minimum requirements for corporate exposures articulated in section 2.

F. CALCULATION OF IRB GRANULARITY ADJUSTMENT TO CAPITAL

1. DEFINITION AND SCOPE OF GRANULARITY ADJUSTMENT

503. The granularity adjustment is an addition or subtraction to the baseline level of risk weighted assets described earlier in this document. IRB baseline risk-weights are calibrated assuming a bank with exposures of "typical" granularity. The purpose of the granularity adjustment is to recognise that a bank with exposures characterised by coarse granularity, implying a large residual of undiversified idiosyncratic risk (i.e. single-borrower risk concentrations), should require additional capital. Similarly, a bank with exposures characterised by finer than "typical" or average granularity should demand a smaller than average capital requirement.

(i) Exposure aggregation

504. If two borrowers have a strong corporate relationship and high default correlation, then they should be treated as a single obligor regardless of whether they have separate legal status. Related borrowers are to be identified using the same procedures as stipulated in national rules for limiting credit risk concentrations to single borrowers. If each entity within a group of related borrowers does not have the same PD due to different ratings, the overall PD of the group will be calculated as the exposure-weighted average of PD of the individual legal entities.

(ii) Treatment of guarantees and credit derivatives

505. If the bank has received regulatory capital relief on an exposure from a recognised guarantee or credit derivative then the exposure will be regarded as an exposure to the guarantor or seller of the credit derivative rather than the borrower.

(iii) LGD of borrowers with multiple facilities

506. The LGD of borrowers with multiple facilities is equal to the weighted average of LGDs by exposure size.

2. METHODOLOGY FOR CALCULATIONS

507. In the equations below, subscript *t* indexes the exposure class, subscript *b* indexes the internal borrower grades within a given exposure class, and the notation $i \in b$ refers to borrowers *i* in grade *b*.

508. For each internal grade *b* in each portfolio *t*, calculate the values of

$$F_b = N(\alpha_{t1} \cdot G(PD_b) + \alpha_{t0}) - PD_b,$$ [38]

where α_{t0} and α_{t1} are constants that depend only on the exposure type.[39] For corporate, bank, and sovereign exposures, the values of these coefficients are α_{t0}=1.288 and α_{t1}=1.118. For other exposure types, the coefficients are yet to be determined. Coefficient values for other exposure types will be developed as the Committee determines the appropriate IRB treatments for those exposures.

509. The remaining calculations follow a two-step procedure. In the first step, risk components are translated into four aggregate characteristics: (a) a weighted-average PD, (b) a weighted-average LGD, (c) a weighted-average F, and (d) an 'effective' number of loans, n^*. In the second step, the granularity adjustment is calculated from these aggregate characteristics.

(i) Step 1: Calculation of aggregate characteristics

510. The aggregate default probability (PD_{AG}) is calculated as a weighted average of the default probabilities associated with each grade (PD_b) according to the following formula:

$$PD_{AG} = \sum_b s_b \cdot PD_b.$$

where s_b is the exposure share of risk grade *b* in total exposure.

511. The aggregate loss given default (LGD_{AG}) is calculated as a weighted average of the LGDs across risk grades and exposure classes, according to the following formula:

$$LGD_{AG} = \frac{\sum_b s_b x PD_b x LGD_b}{\sum_b s_b x PD_b}.$$

where LGD_b is the exposure-weighted LGD in grade *b*.

512. The aggregate F_{AG} is calculated as a weighted average of the grade-level values of F_b according to the following formula:

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[38] F(b) refers to the systematic risk sensitivity; please refer to the Supporting Document for details.

[39] Recall that N(*x*) denotes the cumulative distribution function for a standard normal random variable (i.e. the probability that a normal random variable with mean zero and variance of one is less than or equal to x), and G(*z*) denotes the inverse cumulative distribution function for a standard normal random variable (i.e. the value *x* such that N(*x*)=*z*).

$$F_{AG} = \sum_{b} s_b x F_b.$$

513. The number of effective loans (n^*) is calculated according to the following formula:

$$n^* = 1/\sum_{b} A_b H_b s_b^2$$

where H_b is a measure of exposure concentration within the grade calculated according to the following formula:

$$H_b = \sum_{i \in b} EAD_i^2 \bigg/ \left(\sum_{i \in b} EAD_i \right)^2.$$

The weights A_b in the expression for n^* are given by

$$A_b = \frac{LGD_b^2 x(PD_b x(1 - PD_b) - 0.033xF_b^{\,2}) + 0.25xPD_b xLGD_b x(1 - LGD_b)}{LGD_{AG}^2 x(PD_{AG} x(1 - PD_{AG}) - 0.033xF_{AG}^2) + 0.25xPD_{AG} xLGD_{AG} x(1 - LGD_{AG})}.$$

(ii) Step 2: Calculating the granularity adjustment

514. The aggregate characteristics are used to calculate the exposure class's *granularity scaling factor* (GSF)

$$\text{GSF} = (0.6 + 1.8 \times LGD_{AG}) \times (9.5 + 13.75 \times PD_{\text{AG}}/F_{\text{AG}}).$$

515. The granularity adjustment is calculated as the difference between (a) total non-retail exposure times GSF/n^*, and (b) 0.04 times the baseline level of non-retail risk-weighted assets. This amount is added to (or, if negative, subtracted from) baseline risk-weighted assets.

IV. Asset securitisation

516. Securitisation[40] involves the legal or economic transfer of assets or obligations by an originating institution to a third party, typically referred to as a "special purpose vehicle" (SPV). The SPV then issues asset-backed securities (ABS) that are claims against specific asset pools.

517. The treatment of the explicit risks arising from securitisation – whether assumed by originating banks, investing banks or sponsoring banks – is set out in section 1. Section 2 outlines a proposed treatment for securitisation transactions under an IRB approach. Section 3 discusses the basis for addressing implicit or residual risks that arise when an institution provides support to a securitised pool of assets that exceeds its contractual obligations (i.e. implicit recourse). Finally, section 4 outlines the disclosure requirements for asset securitisation.

1. THE TREATMENT OF EXPLICIT RISKS ASSOCIATED WITH SECURITISATIONS UNDER THE STANDARDISED APPROACH

(i) Treatment for originating banks

(a) Minimum operational requirements for achieving a clean break

518. In order for an originating bank to remove securitised assets from its balance sheet for purposes of calculating risk-based capital, the bank must transfer the assets legally or economically via a true sale, e.g. novation, assignment, declaration of trust, or subparticipation. More specifically, a *clean break* has occurred only if:

(a) the transferred assets have been legally isolated from the transferor; that is, the assets are put beyond the reach of the transferor and its creditors, even in bankruptcy or receivership. This must be supported by a legal opinion;

(b) the transferee is a qualifying special-purpose vehicle and the holders of the beneficial interests in that vehicle have the right to pledge or exchange those interests; and

(c) the transferor does not maintain effective or indirect control over the transferred assets.[41]

519. *Clean-up calls*[42] should represent a relatively small percentage of the overall issuance of securities backed by the securitised assets. If not, or if the sponsoring bank wishes to exercise the clean-up call at a level greater than the pre-established level, then the bank should consult with its national supervisor prior to exercising the call.

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[40] This section deals with traditional securitisation and does not address synthetic securitisation. Synthetic securitisation refers to structured transactions in which banks use credit derivatives to transfer the credit risk of a specified pool of assets to third parties.

[41] A transferor has maintained effective control over the transferred assets if the transferor is able to repurchase from the transferee the assets in order to realise their benefits **and** is obligated to retain the risk of the assets. For purposes of determining whether a clean break has been made, the transferor's retention of servicing rights to the asset does not necessarily constitute indirect control of the asset.

[42] A clean-up call is an option held by the servicer, which may also be the transferor, to purchase previously transferred assets when the amount of outstanding assets falls to a level at which the cost of servicing those assets becomes burdensome.

(b) Minimum capital requirements for credit enhancements

520. Originating banks may continue to be involved in a securitisation transaction as loan servicers (or servicing agents) and providers of credit enhancement. In order for the risk of association to be limited, the enhancement must only be provided at the outset of the scheme. In general, originators and loan servicers that provide credit enhancement must deduct the full amount of the enhancement from capital, taking into account the risk-based capital charge that would have been assessed if the assets were held on the balance sheet (see also paragraph 526). Subject to national discretion, there may be additional requirements that a credit enhancement must meet to be accorded this treatment. Otherwise, the bank providing the enhancement may not have achieved a clean break and, as such, would not be permitted to remove the assets from the calculation of its risk-based capital ratios. Credit enhancement can take the form of servicing fees. In jurisdictions where servicing fees are capitalised and reported as an on-balance sheet asset, any portion of these servicing assets functioning as credit enhancements should also be deducted for capital purposes.[43]

521. Subject to national discretion, a second loss credit enhancement may be treated as a direct credit substitute if first loss protection is significant. Such prior loss protection generally must be provided by a third party and may elevate the credit quality of the second-loss enhancement to an investment grade level. In this case, capital is assessed against the notional amount of the second loss enhancement. Alternatively, a second loss credit enhancement may require a deduction from capital.

522. Generally, apart from contractual provisions for providing short-term liquidity, originators or loan servicers may not provide “cash advances” or liquidity facilities to a securitisation transaction to cover short-term deficiencies in cash flow. This would be considered the equivalent of providing funding or credit enhancement and, as a result, the clean break criteria will not have been met. However, subject to national discretion and if contractually provided for, loan servicers may advance cash to ensure an uninterrupted flow of payments to investors so long as the servicer is entitled to reimbursement for any advances. Reimbursement includes repayment from subsequent collections, as well as repayment from the available credit enhancements. The payment to any investors from the cash flows stemming from the underlying asset pool and the credit enhancement must be subordinated to the reimbursement of the cash advance. Based on these conditions, undrawn cash advances are determined to be primarily liquidity enhancements and may be converted to an on-balance sheet equivalent at 20% and generally risk-weighted at 100%. The conversion factor should be applied to either the fixed notional amount of the facility or, if no amount is set, the entire asset pool size.

(c) Minimum requirements for revolving securitisations with early amortisation features

523. Revolving credit securitisations may contain early amortisation provisions that are designed to force an early wind-down of the securitisation program if the credit quality of the underlying asset pool deteriorates significantly, e.g. if triggered due to an economic event or factor.[44] For those transactions, a minimum 10% conversion factor must be applied to the

[43] Servicing assets that are not credit enhancements should be assigned the appropriate risk weight.

[44] Early amortisation also may be triggered for non-economic reasons, i.e. reasons not related to the securitised assets. Examples include the seller/servicer failing to make required deposits or payments, or the bankruptcy or receivership of the seller/servicer.

notional amount of the off balance sheet securitised asset pool in the transaction (sometimes referred to as the "investors interest").[45] Subject to national discretion, this minimum conversion factor may be increased to a higher percentage (e.g. 20%) depending on the insufficiency of any operational requirements. Such a determination will depend on numerous factors, such as provisions regarding rapid amortisation (e.g. how quickly investors may be repaid) and the permitted size of clean up calls.

(ii) Treatment for investing banks

524. This section sets out the treatment of investments in ABS made by third parties.

525. Capital requirements for banks' investments in ABS are based on the ratings by eligible external credit assessment institutions.[46] However, beyond meeting the general eligibility criteria described in paragraph 46, the ECAIs deemed eligible in the area of securitisation must demonstrate their expertise in this field, as may be evidenced in particular by a strong market acceptance.

526. Securitisation tranches are risk-weighted as follows:

Securitisation tranches

External Credit Assessment	AAA to AA-	A+ to A-	BBB+ to BBB-	BB+ to BB-	B+ and below or unrated
Tranches	20%	50%	100%	150%	Deduction from capital[47]

527. Unrated ABS are generally deducted from capital. However, *senior* ABS, which are part of a securitisation structure that is not rated,[48] may be accorded a look-through treatment, i.e. be assigned to the risk category appropriate to the underlying assets. The principal criterion for this treatment is to ensure that the investors are effectively exposed to the risk of the underlying asset pool and not to the issuer. This is deemed to be the case if the following conditions are met:

(a) rights on the underlying assets are held either directly by investors in the asset-backed securities or on their behalf by an independent trustee (e.g. by having a first priority perfected security interest in the underlying assets) or by a mandated representative. In case of a direct claim, the holder of the securities has an undivided pro rata ownership interest in the underlying assets. In case of an indirect claim, all liabilities of the trust or special purpose vehicle (or conduit) that issues the securities are related to the issued securities;

(b) the underlying assets must be fully performing when the securities are issued;

(c) the securities are structured such that the cash flow from the underlying assets fully meets the cash flow requirements of the securities without undue reliance on any reinvestment income; and

45 In addition, the on-balance sheet assets (the "originator interest") will be assigned the appropriate risk weight.

46 This capital treatment will apply regardless of the asset type that has been securitised.

47 This implies that credit enhancements provided by either originators or third parties will be deducted from capital.

48 For example, as in the case when securities are privately placed.

(d) funds earmarked for the investors but not yet disbursed do not carry a material reinvestment risk.

528. Even if these conditions are met, mezzanine or subordinated tranches in which banks have invested should still be assigned to the 100% risk category. Further, if an originator retains any subordinated asset-backed securities or a subordinated interest, such positions are considered first loss credit enhancements and should be deducted from capital.

529. An underlying pool of an ABS that qualifies for the look-through approach may be composed of assets that are assigned to different risk weight categories. In such a situation, the unrated senior ABS are assigned a risk weighting according to the highest risk-weighted asset that is included in the underlying asset pool.

530. National supervisory authorities will be responsible for the application of the look-through criteria to structures within their jurisdiction.

(iii) Treatment for sponsoring banks

531. In conduit programs, such as asset-backed commercial paper programs, banks sponsor SPVs that purchase assets from business entities, which typically are non-banks. Sponsoring banks generally are not originators or loan servicers; this is usually the function of the various asset sellers. However, they may provide credit enhancement and liquidity facilities, manage the conduit program and place the conduit's securities into the market.

532. First loss credit enhancement provided by a sponsor must be deducted from capital. Second loss credit enhancements are risk-weighted according to the underlying assets for which they are providing loss protection.

533. If sponsoring banks sell their own assets to the conduit, then they also have assumed the role of originator. Thus, in the event that sponsors/originators also provide credit enhancement to the conduit program, they must deduct the full amount of the loss protection from capital.

534. In general, liquidity facilities provided by sponsors or repackagers may be treated as commitments for risk-based capital purposes provided that such facilities do not support credit losses. In order to ensure that the facility is used purely for liquidity purposes, the following requirements should be met:

(a) a facility must be a separately documented agreement provided to an SPV – not to the investors – at arm's length, on market terms, at market rates and subject to the bank's normal credit approval and review processes;

(b) the SPV must have the clear right to be able to select a third party to provide the facility;

(c) a facility must be fixed in amount and duration, with no recourse to the bank beyond the fixed contractual obligations provided for in the facility;

(d) the terms of the facility must clearly identify and limit the circumstances under which it may be drawn and, in particular, the facility must not be used to provide credit support, cover losses sustained, or act as permanent revolving funding;

(f) the drawings under the facility should not be subordinated to the interests of the noteholders and the payment of the fee for the facility should not be further subordinated or subject to a waiver or deferral; and

(g) the facility should include either a reasonable asset quality test to ensure that a drawing would not cover deteriorated or defaulted assets or a term requiring the termination or reduction of the facility for a specified decline in asset quality.

535. Facilities that are determined to be primarily liquidity enhancements may be converted at 20% and generally risk-weighted at 100%.

536. Facilities not meeting these criteria will be regarded as credit exposures. Upon supervisory evaluation (i.e. depending on their credit quality), these facilities will be regarded as either direct credit substitutes and be treated according to the risk-weighted scheme for asset backed securities (paragraph 526), or as a credit enhancement, which implies deduction from capital.

2. SECURITISATION UNDER IRB: A HYBRID APPROACH

537. The Committee has developed the outline of a securitisation treatment for IRB that follows the same economic logic used for the standardised approach. At the same time, the Committee wishes to take advantage of the greater capacity for risk-sensitivity under the IRB framework. The specific mechanism depends on whether the bank in question is an issuer or an investor in securitisation tranches. The treatment described here would apply to traditional securitisation transactions under both the foundation and advanced IRB approaches.

538. The Committee will continue its work to refine the IRB treatment of securitisation during the consultative period, and to address key outstanding issues. These issues, including operating standards and the treatment to be accorded to synthetic securitisation transactions, are discussed below.

(i) Issuing banks

539. For banks issuing securitisation tranches, the full amount of retained first-loss positions would be deducted from capital, regardless of the IRB capital requirement that would otherwise be assessed against the underlying pool of securitised assets.

540. The Committee is also considering whether issuing banks that retain tranches with an explicit rating from a recognised external credit assessment institution could apply an IRB capital requirement tied to that rating by mapping this assessment into the PD/LGD framework. This treatment effectively follows the approach for externally rated tranches held by investor banks described below.

(ii) Investing banks

541. For banks investing in securitisation tranches issued by other institutions, the Committee proposes to rely primarily on ratings for such tranches provided by external credit assessment institutions (ECAIs). Specifically, the bank would treat the tranche as a single credit exposure like other exposures, and apply a capital requirement on the basis of the PD and LGD appropriate to the tranche. The appropriate PD would be that associated with the external rating on the tranche in question. This PD could be measured directly, as the long-term historical overall default rate of instruments in that rating category for the ECAI in question measured with an appropriately conservative bias, or measured indirectly as the PD estimated by the bank for its own internal grade that is “comparable” to that external rating based on a mapping analysis that is approved by supervisors. Although the Committee will

continue to refine its analysis over the consultative period, it proposes for the sake of conservatism to apply a 100% LGD to such tranches. This 100% LGD would apply to both foundation and advanced-approach banks.

542. If the tranche is unrated (e.g. associated with a bilateral transaction), which can be viewed as evidence of the position's low credit quality, the investing bank would be expected to deduct the tranche from capital.

3. TREATMENT OF IMPLICIT AND RESIDUAL RISKS ARISING FROM SECURITISATIONS

543. Even when a securitisation transaction meets the clean break criteria as specified in paragraph 519, originators may be subject to "moral" or reputational risk. As a result, the institution may choose to provide support that exceeds its contractual obligations (i.e. implicit recourse) to a securitised pool of assets. For instance, implicit recourse occurs when an originator provides support to a securitisation transaction whose underlying asset pool is experiencing credit deterioration. Illustrative examples of such recourse include the purchase/substitution of assets that were securitised, lending to the structure (outside of contractual provisions for providing short-term liquidity) and deferral of fee income associated with the structure.

544. The following measures will apply when an institution is determined to have provided implicit recourse:

(i) If it is determined that an institution has provided implicit recourse to any portion or tranche of a securitisation that it has originated, then all of the assets associated with this structure (i.e. not only a particular tranche but *all* tranches) will be treated as if they were on the bank's balance sheet. These assets will then be risk-weighted accordingly for purposes of capital calculation.

(ii) If a supervisor determines that an institution has provided implicit recourse on a second and subsequent occasion, then all of this institution's securitised assets – not just the structure for which implicit support was provided – will be treated as if they were on its balance sheet and risk-weighted accordingly. In addition, the bank will be prevented from gaining capital relief through the securitisation process for a period to be determined by the bank's supervisor.

(iii) In both instances, banks will disclose publicly that they were found to have provided implicit recourse and the consequences of such actions as outlined above. This disclosure will include the impact of the securitised assets reverting back to the bank's balance sheet and the potential for further supervisory action, as appropriate.

545. The Committee believes that **at a minimum**, these measures will help address the issue of banks taking on more risk than that for which they are contractually liable. However, the Committee is conducting further work to fully assess the nature, frequency and consequences of banks providing implicit recourse. It is also studying other residual risks not captured in an explicit capital charge as well as unacceptable capital arbitrage opportunities arising through the securitisation process. The results of the Committee's study in these areas may allow an assessment of an *ex ante* minimum capital charge for securitisation transactions to fully address implicit and residual risks. In setting such a charge, the Committee would ensure that it is risk-based and would take account of all other capital provided under the minimum capital requirements framework as well as the potential impact on the securitisation market. The Committee recognises the value of the consultative process

in developing an appropriate treatment for asset securitisation and seeks meaningful dialogue with the industry in this regard.

4. DISCLOSURE REQUIREMENTS

546. In order for banks to obtain capital relief through the securitisation process, disclosure of qualitative items and quantitative data will be required, as described in paragraphs 659 and 660 of the Pillar 3 section. These disclosures are required to be made by banks in their statutory accounts, whether they act as originators or sponsors/third parties, and by issuers (SPVs), in the offering circulars.

V. Operational risk

A. DEFINITION OF OPERATIONAL RISK

547. Operational risk is defined as: “the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events”. This definition includes legal risk. However, strategic and reputational risk is not included in this definition for the purpose of a minimum regulatory operational risk capital charge. The Committee intends to work with the industry further on this topic.

B. THE MEASUREMENT METHODOLOGIES

548. The framework outlined below presents three methods for calculating operational risk capital charges in a ‘continuum’ of increasing sophistication and risk sensitivity: (i) the Basic Indicator Approach; (ii) the Standardised Approach and (iii) the Internal Measurement Approach (IMA). In future, a Loss Distribution Approach, in which the bank specifies its own loss distributions, business lines and risk types may be available.

549. Banks are encouraged to move along the spectrum of available approaches as they develop more sophisticated operational risk measurement systems and practices. Minimum standards for the use of each approach are presented below. Banks which have fulfilled the criteria for a given approach are allowed to use that approach, regardless of whether they have been using a simpler approach previously.

550. Internationally active banks and banks with significant operational risk exposure are expected to use a more advanced approach than the basic indicator approach. Banks will be permitted to use the standardised approach for some business lines and the internal measurement approach for others. Banks will not be allowed to choose to revert to simpler approaches once they have been approved for more advanced approaches.

551. Banks should capture the relevant risks for each business line on a consolidated basis.

1. THE BASIC INDICATOR APPROACH

552. Banks have to hold capital for operational risk equal to a fixed percentage (denoted alpha) of gross income.[49]

[49] Gross Income = Net Interest Income + Net Non-Interest Income (comprising (i) fees and commissions receivable less fees and commissions payable, (ii) the net result on financial operations and (iii) other income. This excludes extraordinary or irregular items.) It is intended that this measure should reflect income *before* deduction of operational losses. The Committee will conduct further work to refine this definition.

2. THE STANDARDISED APPROACH

553. In the Standardised Approach, banks' activities are divided into standardised business units and business lines. Within each business line, there is a specified broad indicator that reflects the size or volume of banks' activities in that area. The indicator serves as a rough proxy for the amount of operational risk within each of these business lines. The table below shows the proposed business units, business lines and indicators.

Business Units	Business Lines[50]	Indicator	Capital factors[51]
Investment banking	Corporate finance	Gross income	β_1
	Trading and sales	Gross income (or VAR)	β_2
Banking	Retail banking	Annual average assets	β_3
	Commercial banking	Annual average assets	β_4
	Payment and settlement	Annual settlement throughput	β_5
Others	Retail brokerage	Gross income	β_6
	Asset management	Total funds under management	β_7

554. Within each business line, the capital charge is calculated by multiplying the indicator by a capital factor (denoted beta) assigned to that business line. Beta will be set by supervisors and will serve as a rough proxy for the industry-wide relationship between the operational risk loss experience for a given business line and the indicator for that business line.

555. The total capital charge is calculated as the simple summation of the regulatory capital charges across each of the business lines.

3. THE INTERNAL MEASUREMENT APPROACH

556. Under the Internal Measurement Approach, a capital charge for the operational risk of banks is determined using the following procedures:

- a bank's activities are categorised into the same business lines as in the standardised approach. A broad set of operational risk types is defined and applied across business lines;[52]

[50] A business line for agency services (including custody) is intended to be included in the final proposal. An insurance business line may also be included in both the standardised and internal measurement approach, where insurance is included in a consolidated group for capital purposes.

[51] These factors, denoted Beta factors, will be calibrated once more data is available. One approach to calibration, based on 20% of existing minimum regulatory capital, is set out in Annex 3 of the Supporting Document *Operational Risk.*

[52] An example of business lines, risk types and exposure indicators is provided in Annex 4 of the Supporting Document.

- within each business line/risk type combination, the supervisor specifies an exposure indicator (EI) which is the proxy for the size (or amount of risk) of each business line's operational risk exposure to each risk type;
- for each business line/risk type combination, in addition to the exposure indicator, banks measure, based on their internal loss data, a parameter representing the probability of loss event (PE) and a parameter representing the loss given that event (LGE). The product of EI, PE and LGE is used to calculate the expected loss (EL);
- the supervisor supplies a factor (denoted gamma) for each business line/risk type combination. Gamma translates the expected loss into a capital charge and is determined by supervisors based on industry-wide data. The capital charge for each business line/risk type combination is the product of gamma and EL;
- the overall capital charge for a bank is the simple sum of all the resulting products.

557. As part of the process of supervisory validation, banks will supply their supervisor with the individual components of the expected loss calculation instead of just the product.

558. As banks and supervisors gain more experience with this approach, the possibility will be examined of allowing banks greater flexibility to use their own definition of business lines and risk types.

4. THE "FLOOR"

559. For banks applying the Internal Measurement Approach, the Committee will set a floor, below which the capital charge cannot fall. The Committee will review the need for the existence and level of the floor, two years after the implementation of the New Accord. Mechanisms by which the floor can be set are discussed in the Supporting Document, *Operational Risk.*

C. QUALIFYING CRITERIA

560. Minimum standards for the use of each approach are shown below.

1. THE BASIC INDICATOR APPROACH

561. The basic indicator approach is intended to be applicable to any bank regardless of its complexity or sophistication. As such, no criteria for use apply. Nevertheless, banks using this approach will be urged to comply with the Committee's guidance on *Operational Risk Sound Practices*, which is currently being developed and which will be released in the future. This document will also serve as guidance to supervisors under Pillar 2.

2. THE STANDARDISED APPROACH

562. As well as meeting the Basel Committee's *Operational Risk Sound Practices*, banks will have to meet the following standards to be eligible for the standardised approach:

(i) Effective risk management and control

563. The qualitative standards that banks must meet include the following: existence of an independent risk control and audit functions, effective use of risk reporting systems, active involvement of board of directors and senior management and appropriate documentation of risk management systems.

- Banks must establish an independent operational risk management and control process, which covers the design, implementation and review of its operational risk measurement methodology. Responsibilities include establishing the framework for the measurement of operational risk and control over the construction of the operational risk methodology and key inputs.
- Banks' internal audit groups must conduct regular reviews of the operational risk management process and measurement methodology.

(ii) Measurement and validation

- Banks must have both appropriate risk reporting systems to generate data used in the calculation of a capital charge and the ability to construct management reporting based on the results.
- Banks must begin to systematically track relevant operational risk data by business line.
- Banks will have to develop specific, documented criteria for mapping current business lines and activities into the standardised framework. The framework has to be reviewed and adjusted for new or changing business activities and risks as appropriate.

3. INTERNAL MEASUREMENT APPROACH

564. In addition to the standards required for banks using the Standardised Approach, banks wishing to use the Internal Measurement Approach will have to meet the following standards:

(i) Effective risk management and control

565. Accuracy of loss data, and confidence in the results of calculations using that data, (including PEs and LGEs), have to be established through "use tests". Banks have to use the collected data and the resulting measures for risk reporting, management reporting, internal capital allocation purposes, risk analysis, etc. Banks that do not fully integrate an internal measurement methodology into their day-to-day activities and major business decisions will not qualify for this approach.

(ii) Measurement and validation

- Banks must develop sound internal loss reporting practices, supported by loss database systems that are consistent with the scope of operational risks defined by supervisors and the banking industry.

- Banks must have an operational risk measurement methodology, knowledgeable and skilled staff, and an appropriate systems infrastructure capable of identifying and gathering comprehensive operational risk loss data necessary to create a loss database and calculate appropriate PEs and LGEs. Systems must be able to gather data from all appropriate sub-systems and geographic locations. Missing data from various systems, groups or locations must be explicitly identified and tracked.
- Banks must have in place a sound process to identify in a consistent manner over time the events used to construct a loss database and to be able to identify which historical loss experiences are appropriate for the institution and are representative of their current and future business activities. This entails developing and defining loss data criteria in terms of the type of loss data and the severity of the loss data that goes beyond the general supervisory definition and specifications.
- Banks wishing to use external data must establish procedures for the use of such data. They must specify procedures and methodologies for the scaling of external loss data or internal loss data from other sources. These conditions and practices must be regularly reviewed, documented, and subject to periodic independent review.
- Sources of external data must be reviewed regularly in order to ensure their accuracy and applicability. Banks must review and understand the assumptions used in the collection and assignment of loss events and resultant loss statistics.
- A bank's operational risk loss database must extend for a number of years (to be set by the Committee), for significant business lines. Additionally, banks must develop specific criteria for assigning loss data to a particular business line and risk types. A process has to be developed to identify and incorporate plausible historically large or significant events into the database, which may range beyond the observation period. These processes have to be clearly documented and be specific enough for independent review and verification.
- Banks must regularly conduct validation of their loss rates, risk indicators and size estimations in order to ensure that inputs to the regulatory capital charge are reliable.
- Regulators will examine the data collection and validation process and comment on the control environment of the institution.
- Banks must adhere to rigorous processes in estimating parameters such as EI, PE, and LGE.
- Bank management should incorporate experience and judgement into an analysis of the loss data and the resulting PEs and LGEs. Banks must identify clearly the exceptional situations under which judgmental overrides may be used, to what extent they are to be used and who is authorised to make such decisions. The conditions under which these overrides may be made and detailed records of changes must be clearly documented and subject to independent review.

VI. Trading book issues

A. DEFINITION OF THE TRADING BOOK

566. The following definition of the trading book replaces the present definition in the 1996 *Amendment to the Capital Accord to Incorporate Market Risks* (see Introduction – Section I, The risk measurement framework, paragraph 2).[53]

567. A trading book consists of positions in financial instruments and commodities held either with trading intent or in order to hedge other elements of the trading book. To be eligible for inclusion within the trading book, financial instruments must either be free of any restrictive covenants on their tradability or able to be hedged completely.

568. A financial instrument is any contract that gives rise to both a financial asset of one entity and a financial liability or equity instrument of another entity. Financial instruments include both primary financial instruments (or cash instruments) and derivative financial instruments. A financial asset is any asset that is cash, the right to receive cash or another financial asset; or the contractual right to exchange financial assets on potentially favourable terms, or an equity instrument. A financial liability is the contractual obligation to deliver cash or another financial asset or to exchange financial liabilities under conditions that are potentially unfavourable.

569. Positions held with trading intent are those held intentionally for short-term resale and/or with the intent of benefiting from actual or expected short-term price movements or to lock in arbitrage profits, and positions held through matched principal broking and market making. Some or all of the following will evidence trading intent:

- Clearly documented trading strategy for the position/instrument, approved by senior management (which would include expected holding horizon).
- Clearly defined policies and procedures for the active management of the position, which must include:
  - positions are managed on a trading desk;
  - position limits are set and monitored for appropriateness;
  - dealers have the autonomy to enter into/manage the position within agreed limits and according to the agreed strategy;
  - positions are marked to market or marked to model regularly;
  - positions are reported to senior management as an integral part of the institution's risk management process; and
  - positions are actively monitored with reference to market information sources (assessment should be made of the marketability or hedgeability of the position/its component risks). This would include assessing the quality and availability of market inputs to the valuation process; level of market turnover, sizes of positions traded in the market, etc.

[53] The trading book rules and principles spelled out in paragraphs 3 to 5 of the Introduction to the Market Risk Amendment remain unchanged.

- Clearly defined policy and procedures to monitor the position against the bank's trading strategy including the monitoring of turnover and stale positions in the bank's trading book.

570. A hedge is a position that materially or entirely offsets the component risk elements of another trading book position or a set of positions.

B. PRUDENT VALUATION GUIDANCE

571. This section provides banks with guidance on prudent valuation for positions in the trading book. This guidance is especially important for less liquid positions which, although they will not be excluded from the trading book solely on grounds of lesser liquidity, raise supervisory concerns about prudent valuation.

572. A framework for prudent valuation practices should at a minimum include the following:

1. SYSTEMS AND CONTROLS

573. Banks must establish and maintain adequate systems and controls sufficient to give management and supervisors the confidence that their valuation estimates are prudent and reliable. These systems must be integrated with other risk management systems within the organisation (such as credit analysis). Such systems must include:

- Documented policies and procedures for the process of valuation. This includes clearly defined responsibilities of the various areas involved in the determination of the valuation, sources of market information and review of their appropriateness, frequency of independent valuation, timing of closing prices, procedures for adjusting valuations, month end and ad-hoc verification procedures; and
- Clear and independent (i.e. independent of front office) reporting lines for the department accountable for the valuation process. The reporting line should ultimately be to a main board executive director.

2. VALUATION METHODOLOGIES

(i) Marking to market

574. Marking to market is the daily valuation of positions at readily available close out prices that are sourced independently. Examples of readily available close out prices include exchange prices, screen prices, or quotes from several independent reputable brokers.

575. Banks must mark to market as much as possible. The more prudent side of bid/offer must be used unless the institution is a significant market maker in a particular position type and it can close out at mid-market.

(ii) Marking to model

576. In the limited circumstances where marking to market is not possible, banks may mark to model, where this can be demonstrated to be prudent. Marking to model is defined as any valuation which has to be benchmarked, extrapolated or otherwise calculated from a market input. When marking to model, an extra degree of conservatism is appropriate. Supervisory authorities will consider the following in assessing whether a mark to model valuation is prudent:

- Senior management should be aware of the elements of the trading book which are subject to mark to model and should understand the materiality of the uncertainty this creates in the reporting of the risk/performance of the business.
- Market inputs should be sourced, to the extent possible, in line with market prices (as discussed above). The appropriateness of the market inputs for the particular position being valued should be reviewed regularly.
- Where available, generally accepted valuation methodologies for particular products should be used as far as possible.
- Where the model is developed by the institution itself, it should be based on appropriate assumptions, which have been assessed and challenged by suitably qualified parties independent of the development process. The model should be developed or approved independently of the front office. It should be independently tested. This includes validating the mathematics, the assumptions and the software implementation.
- There should be formal change control procedures in place and a secure copy of the model should be held and periodically used to check valuations.
- Risk management should be aware of the weaknesses of the models used and how best to reflect those in the valuation output.
- The model should be subject to periodic review to determine the accuracy of its performance (e.g. assessing continued appropriateness of the assumptions, analysis of P&L versus risk factors, comparison of actual close out values to model outputs).
- Valuation adjustments should be made as appropriate, for example, to cover the uncertainty of the model valuation (see also valuation adjustments).

3. VALUATION ADJUSTMENTS OR RESERVES

577. Banks must establish and maintain procedures for considering valuation adjustments/reserves. Supervisory authorities expect banks using third-party valuations to consider whether valuation adjustments are necessary. Such considerations are also necessary when marking to model.

578. Supervisory authorities expect the following valuation adjustments/reserves to be formally considered at a minimum: unearned credit spreads, close-out costs, operational risks, early termination, investing and funding costs, and future administrative costs and where appropriate, model risk.

579. In addition, supervisory authorities will require banks to consider the need for establishing reserves for less liquid positions (and on an ongoing basis review their continued appropriateness). Reduced liquidity could arise from market events. Additionally, close-out prices for concentrated positions and/or stale positions are more likely to be adverse. Banks

must consider several factors when determining whether a valuation reserve is necessary for less liquid items. These factors include the amount of time it would take to hedge out the position/risks within the position, the average volatility of bid/offer spreads, the availability of market quotes (number and identity of market makers) and the average and volatility of trading volumes.

580. Valuation adjustments must impact regulatory capital.

C. TRADING BOOK CAPITAL TREATMENT FOR SPECIFIC RISK UNDER THE STANDARDISED METHODOLOGY

581. The following sections describe the changes to the specific risk capital treatments under the standardised methodology within the trading book.[54] These changes are consistent with the changes in the banking book capital requirements under the standardised approach.

1. SPECIFIC RISK CAPITAL CHARGES FOR GOVERNMENT PAPER

582. The new capital charges will be as follows.

External credit assessment	Specific risk capital charge
AAA to AA-	0%
A+ to BBB-	0.25% (residual term to final maturity 6 months or less)
	1.00% (residual term to final maturity greater than 6 and up to and including 24 months)
	1.60% (residual term to final maturity exceeding 24 months)
All others	8.00%

2. SPECIFIC RISK CAPITAL CHARGES FOR POSITIONS HEDGED BY CREDIT DERIVATIVES

583. Partial allowance will be recognised for protection provided by those credit default swaps and credit linked notes where there is an exact match in terms of reference asset, maturity and currency to the underlying exposure. To the extent that the transaction transfers risk (i.e. taking account of restrictive payout provisions such as fixed payouts and materiality thresholds), an 80% specific risk offset will be applied to the side of the transaction with the higher capital charge, while the specific risk requirement on the other side will be zero.

584. Full allowance will be recognised for protection provided by those total rate of return swaps where there is an exact match in terms of reference asset, maturity and currency to the underlying exposure. To the extent that the transaction transfers risk (i.e. taking account

[54] The specific risk capital charges for qualifying debt paper as set out in *the 1996 Amendment to the Capital Accord to Incorporate Market Risks* will remain unchanged.

of restrictive payout provisions such as fixed payouts and materiality thresholds), the matched position will be fully offset for regulatory capital purposes.

585. For the credit derivatives captured in the above two paragraphs and where there is no asset mismatch[55] between the underlying and the reference asset but there is a currency or maturity mismatch[56] between the credit protection and the underlying asset, the following rule applies. Rather than adding the specific risk capital requirements for each side of the transaction (i.e. the credit protection and the underlying asset) only the higher of the two capital requirements will apply.

[55] Or where the asset mismatch meets the criteria in paragraph 126 (h).

[56] Currency mismatches should feed into the normal reporting of foreign exchange risk.

Part 3: The Second Pillar – Supervisory Review Process

586. This section discusses the key principles of supervisory review, supervisory transparency and accountability and risk management guidance produced by the Committee with respect to banking risks, including guidance pertaining to the treatment of interest rate risk in the banking book.

A. IMPORTANCE OF SUPERVISORY REVIEW

587. The supervisory review process of the New Accord is intended not only to ensure that banks have adequate capital to support all the risks in their business, but also to encourage banks to develop and use better risk management techniques in monitoring and managing their risks.

588. The supervisory review process recognises the responsibility of bank management in developing an internal capital assessment process and setting capital targets that are commensurate with the bank's risk profile and control environment. In the New Accord, bank management continues to bear responsibility for ensuring that the bank has adequate capital to support its risks beyond the core minimum requirements.

589. Supervisors are expected to evaluate how well banks are assessing their capital needs relative to their risks and to intervene, where appropriate. This interaction is intended to foster an active dialogue between banks and supervisors such that when deficiencies are identified, prompt and decisive action can be taken to reduce risk or restore capital. Accordingly, supervisors may wish to adopt an approach to focus more intensely on those banks whose risk profile or operational experience warrants such attention.

590. The Committee recognises the relationship that exists between the amount of capital held by the bank against its risks and the strength and effectiveness of the bank's risk management and internal control processes. However, increased capital should not be viewed as the only option for addressing increased risks confronting the bank. Other means for addressing risk, such as strengthening risk management, applying internal limits, and improving internal controls, must also be considered. Furthermore, capital should not be regarded as a substitute for addressing fundamentally inadequate control or risk management processes.

591. There are three main areas that might be particularly suited to treatment under Pillar 2: risks considered under Pillar 1 that are not fully captured by the Pillar 1 process (e.g. the proposed operational risk charge in Pillar 1 may not adequately cover all the specific risks of any given institution); those factors not taken into account by the Pillar 1 process (e.g. interest rate risk); and factors external to the bank (e.g. business cycle effects). A further important aspect of Pillar 2 is the assessment of compliance with the minimum standards and disclosure requirements of the more advanced methods in Pillar 1, in particular the IRB framework for credit risk. Supervisors must ensure that these requirements are being met, both as qualifying criteria and on a continuing basis.

B. FOUR KEY PRINCIPLES OF SUPERVISORY REVIEW

592. The Committee has identified four key principles of supervisory review, which are discussed in the Supporting Document *Supervisory Review Process*.

593. The four key principles complement those outlined in the extensive supervisory guidance that has been developed by the Basel Committee, the keystone of which is the Core Principles for Effective Banking Supervision and the Core Principles Methodology[57]. A list of the specific guidance relating to the management of banking risks is provided at the end of this Part of the paper.

Principle 1: Banks should have a process for assessing their overall capital adequacy in relation to their risk profile and a strategy for maintaining their capital levels.

594. Banks must be able to demonstrate that chosen internal capital targets are well founded and these targets are consistent with their overall risk profile and current operating environment. In assessing capital adequacy, bank management needs to be mindful of the particular stage of the business cycle in which the bank is operating. Rigorous, forward-looking stress testing that identifies possible events or changes in market conditions that could adversely impact the bank should be performed. Bank management clearly bears primary responsibility for ensuring that the bank has adequate capital to support its risks.

595. The five main features of a rigorous process are as follows:

- Board and senior management oversight;
- sound capital assessment;
- comprehensive assessment of risks;
- monitoring and reporting; and
- internal control review.

1. BOARD AND SENIOR MANAGEMENT OVERSIGHT[58]

596. A sound risk management process is the foundation for an effective assessment of the adequacy of banks' capital positions. Bank management is responsible for understanding the nature and level of risk being taken by the bank and how these risks relate to adequate capital levels. It is also responsible for ensuring that the formality and sophistication of the risk management processes are appropriate in light of the risk profile and business plan.

597. The analysis of banks' current and future capital requirements in relation to strategic objectives is a vital element of the strategic planning process. The strategic plan should

[57] *Core Principles for Effective Banking Supervision,* Basel Committee on Banking Supervision (September 1997), and *Core Principles Methodology,* Basel Committee on Banking Supervision (October 1999).

[58] This section of the paper refers to a management structure composed of a board of directors and senior management. The Committee is aware that there are significant differences in legislative and regulatory frameworks across countries as regards the functions of the board of directors and senior management. In some countries, the board has the main, if not exclusive, function of supervising the executive body (senior management, general management) so as to ensure that the latter fulfils its tasks. For this reason, in some cases, it is known as a supervisory board. This means that the board has no executive functions. In other countries, by contrast, the board has a broader competence in that it lays down the general framework for the management of the bank. Owing to these differences, the notions of the board of directors and senior management are used in this section not to identify legal constructs but rather to label two decision-making functions within a bank.

clearly outline the bank's capital needs, anticipated capital expenditures, desirable capital level, and external capital sources. Senior management and the board should view capital planning as a crucial element in being able to achieve its desired strategic objectives.

598. The bank's board of directors has responsibility for setting the bank's tolerance for risks. They should also ensure that management establishes a measurement system for assessing the various risks, develops a system to relate risk to the bank's capital level, and establishes a method for monitoring compliance with internal policies. It is likewise important that the board of directors adopts and supports strong internal controls and written policies and procedures and ensures that management effectively communicates these throughout the organisation.

2. SOUND CAPITAL ASSESSMENT

599. Fundamental elements of sound capital assessment include:

- policies and procedures designed to ensure that the bank identifies, measures, and reports all material risks;
- a process that relates capital to the level of risk;
- a process that states capital adequacy goals with respect to risk, taking account of the bank's strategic focus and business plan; and
- a process of internal controls, reviews and audit to ensure the integrity of the overall management process.

3. COMPREHENSIVE ASSESSMENT OF RISKS

600. All material risks faced by the bank should be addressed in the capital assessment process. While it is recognised that not all risks can be measured precisely, a process should be developed to estimate risks. Therefore, the following risk exposures, which by no means constitute a comprehensive list of *all* risks, should be considered.

601. ***Credit risk***: Banks should have methodologies that enable them to assess the credit risk involved in exposures to individual borrowers or counterparties as well as at the portfolio level. For more sophisticated banks, the credit review assessment of capital adequacy, at a minimum, should cover four areas: risk rating systems, portfolio analysis/aggregation, securitisation/complex credit derivatives, and large exposures and risk concentrations.

602. Internal risk ratings are an important tool in monitoring credit risk. Internal risk ratings should be adequate to support the identification and measurement of risk from all credit exposures, and should be integrated into an institution's overall analysis of credit risk and capital adequacy. The ratings system should provide detailed ratings for all assets, not only for criticised or problem assets. Loan loss reserves should be included in the credit risk assessment for capital adequacy.

603. The analysis of credit risk should adequately identify any weaknesses at the portfolio level, including any concentrations of risk. It should also adequately take into consideration the risks involved in managing credit concentrations and other portfolio issues through such mechanisms as securitisation programs and complex credit derivatives. Further, the analysis of counterparty credit risk should include consideration of public evaluation of the supervisor's compliance with the Core Principles of Effective Banking Supervision.

604. ***Market risk***: This assessment is based largely on the bank's own measure of value-at-risk. Emphasis should also be on the institution performing stress testing in evaluating the adequacy of capital to support the trading function.

605. ***Interest rate risk in the banking book***: The measurement process should include all material interest rate positions of the bank and consider all relevant repricing and maturity data. Such information will generally include: current balance and contractual rate of interest associated with the instruments and portfolios, principal payments, interest reset dates, maturities, and the rate index used for repricing and contractual interest rate ceilings or floors for adjustable-rate items. The system should also have well-documented assumptions and techniques.

606. Regardless of the type and level of complexity of the measurement system used, bank management should ensure the adequacy and completeness of the system. Because the quality and reliability of the measurement system is largely dependent on the quality of the data and various assumptions used in the model, management should give particular attention to these items.

607. ***Liquidity Risk:*** Liquidity is crucial to the ongoing viability of any banking organisation. Banks' capital positions can have an effect on their ability to obtain liquidity, especially in a crisis. Each bank must have adequate systems for measuring, monitoring and controlling liquidity risk. Banks should evaluate the adequacy of capital given their own liquidity profile and the liquidity of the markets in which they operate.

608. ***Other risk***: The Committee recognises that within the other risk category, operational risk tends to be more measurable than risks such as strategic and reputational. The Committee wants to enhance operational risk assessment efforts by encouraging the industry to develop methodologies and collect data related to managing operational risk. For the purposes of measurement under Pillar 1 the Committee expects the industry to focus primarily upon the operational risk component of other risks. However, it also expects the industry to further develop techniques for measuring, monitoring and mitigating all aspects of other risks.

4. MONITORING AND REPORTING

609. The bank should establish an adequate system for monitoring and reporting risk exposures and how the bank's changing risk profile affects the need for capital. The bank's senior management or board of directors should, on a regular basis, receive reports on the bank's risk profile and capital needs. These reports should allow senior management to:

- evaluate the level and trend of material risks and their effect on capital levels;
- evaluate the sensitivity and reasonableness of key assumptions used in the capital assessment measurement system;
- determine that the bank holds sufficient capital against the various risks and that they are in compliance with established capital adequacy goals; and
- assess its future capital requirements based on the bank's reported risk profile and make necessary adjustments to the bank's strategic plan accordingly.

5. INTERNAL CONTROL REVIEW

610. The bank's internal control structure is essential to the capital assessment process. Effective control of the capital assessment process includes an independent review and, where appropriate, the involvement of internal or external audits. The bank's board of directors has a responsibility to ensure that management establishes a measurement system for assessing the various risks, develops a system to relate risk to the bank's capital level, and establishes a method for monitoring compliance with internal policies. The board should regularly verify whether its system of internal controls is adequate to ensure well-ordered and prudent conduct of business.

611. The bank should conduct periodic reviews of its risk management process to ensure its integrity, accuracy, and reasonableness. Areas that should be reviewed include:

- the appropriateness of the bank's capital assessment process given the nature, scope and complexity of its activities;
- the identification of large exposures and risk concentrations;
- the accuracy and completeness of data inputs into the bank's assessment process;
- the reasonableness and validity of scenarios used in the assessment process, and
- stress testing and analysis of assumptions and inputs.

Principle 2: Supervisors should review and evaluate banks' internal capital adequacy assessments and strategies, as well as their ability to monitor and ensure their compliance with regulatory capital ratios. Supervisors should take appropriate supervisory action if they are not satisfied with the result of this process.

612. The supervisory authorities should regularly review the process by which banks assess their capital adequacy, the risk position of the bank, the resulting capital levels and quality of capital held. Supervisors should also evaluate the degree to which banks have in place a sound internal process to assess capital adequacy. The emphasis of the review should be on the quality of the bank's risk management and controls and should not result in supervisors functioning as bank management. The periodic review can involve some combination of:

- on-site examinations or inspections;
- off-site review;
- discussions with bank management;
- review of work done by external auditors (provided it is adequately focused on the necessary capital issues), and
- periodic reporting.

613. The substantial impact that errors in the methodology or assumptions of formal analyses can have on resulting capital requirements requires a detailed review by supervisors of each bank's internal analysis.

(i) Review of adequacy of risk assessment

614. Supervisors should assess the degree to which internal targets and processes incorporate the full range of material risks faced by the bank. Supervisors should also review

the adequacy of risk measures used in assessing internal capital adequacy and the extent to which these risk measures are also used operationally in setting limits, evaluating business line performance and evaluating and controlling risks more generally. Supervisors should consider the results of sensitivity analyses and stress tests conducted by the institution and how these results relate to capital plans.

(ii) Assessment of capital adequacy

615. Supervisors should review the bank's processes to determine:

- that the target levels of capital chosen are comprehensive and relevant to the current operating environment;
- that these levels are properly monitored and reviewed by senior management; and
- that the composition of capital is appropriate for the nature and scale of the bank's business.

616. Supervisors should also consider the extent to which the bank has provided for unexpected events in setting its capital levels. This analysis should cover a wide range of external conditions and scenarios, and the sophistication of techniques and stress tests used should be commensurate with the bank's activities.

(iii) Assessment of the control environment

617. Supervisors should consider the quality of the bank's management information reporting and systems, the manner in which business risks and activities are aggregated, and management's record in responding to emerging or changing risks.

618. In all instances, the economic capital levels at individual banks should be determined according to the bank's risk profile and adequacy of its risk management process and internal controls. External factors such as business cycle effects and the macroeconomic environment should also be considered.

(iv) Supervisory review of compliance with minimum standards

619. In order for certain internal methodologies, credit risk mitigation techniques and asset securitisations to be recognised for regulatory capital purposes, banks will need to meet a number of requirements, including risk management standards and disclosure. In particular, banks will be required to disclose features of their internal methodologies used in calculating minimum capital requirements. As part of the supervisory review process, supervisors must ensure that these conditions are being met on an ongoing basis.

620. The Committee regards this review of minimum standards and qualifying criteria as an integral part of the supervisory review process under Principle 2. In setting the minimum criteria the Committee has considered current industry practice and so anticipates that these minimum standards will provide supervisors with a useful set of benchmarks which are aligned with bank management expectations for effective risk management and capital allocation.

621. There is also an important role for supervisory review of compliance with certain conditions and requirements set for standardised approaches. In this context, there will be a

particular need to ensure that use of various instruments that can reduce Pillar 1 capital requirements are utilised and understood as part of a sound, tested, and properly documented risk management process.

(v) Supervisory response

622. Having carried out the review process described above, supervisors should take appropriate action if they are not satisfied with the results of the bank's own risk assessment and capital allocation. Supervisors should consider a range of actions, such as those set out under Principle 3 and 4 below.

Principle 3: Supervisors should expect banks to operate above the minimum regulatory capital ratios and should have the ability to require banks to hold capital in excess of the minimum.

623. Pillar 1 capital requirements will include a buffer for uncertainties surrounding the Pillar 1 regime which affect the banking population as a whole. Bank-specific uncertainties will be treated under Pillar 2. It is anticipated that such buffers under Pillar 1 will be set to provide reasonable assurance that banks with good internal systems and controls, a well-diversified risk profile and a business profile well covered by the Pillar 1 regime, and who operate with capital equal to Pillar 1 requirements will meet the minimum goals for soundness embodied in Pillar 1. Supervisors will need to consider, however, whether the particular features of the markets for which it is responsible are adequately covered.

624. Supervisors will typically require (or encourage) banks to operate with a buffer, over and above the Pillar 1 standard. Banks should maintain this buffer for a combination of the following:

(a) Pillar 1 minimums are anticipated to be set to achieve a level of bank creditworthiness in markets that is below the level of creditworthiness sought by many banks for their own reasons. For example, most international banks appear to prefer to be highly rated by internationally recognised rating agencies. Thus, banks are likely to chose to operate above Pillar 1 minimums for competitive reasons.

(b) In the normal course of business, the type and volume of activities will change, as will the different risk requirements, causing fluctuations in the overall capital ratio.

(c) It may be costly for banks to raise additional capital, especially if this needs to be done quickly or at a time when market conditions are unfavourable.

(d) For banks to fall below minimum regulatory capital requirements is a serious matter. It may place banks in breach of the relevant law and/or prompt non-discretionary corrective action on the part of supervisors.

(e) There may be risks, either specific to individual banks, or more generally to an economy at large, that are not taken into account in Pillar 1.

625. There are several means available to supervisors for ensuring that individual banks are operating with adequate levels of capital. Among other methods, the supervisor may set trigger and target capital ratios or define categories above minimum ratios (e.g. well capitalised and adequately capitalised) for identifying the capitalisation level of the bank.

Principle 4: Supervisors should seek to intervene at an early stage to prevent capital from falling below the minimum levels required to support the risk characteristics of a particular bank and should require rapid remedial action if capital is not maintained or restored.

626. Supervisors should consider a range of options if they become concerned that banks are not meeting the requirements embodied in the supervisory principles outlined above. These actions may include intensifying the monitoring of the bank; restricting the payment of dividends; requiring the bank to prepare and implement a satisfactory capital adequacy restoration plan; and requiring the bank to raise additional capital immediately. Supervisors should have the discretion to use the tools best suited to the circumstances of the bank and its operating environment.

627. The permanent solution to banks' difficulties is not always increased capital. However, some of the required measures (such as improving systems and controls) may take a period of time to implement. Therefore, increased capital might be used as an interim measure while permanent measures to improve the bank's position are being put in place. Once these permanent measures have been put in place and have been seen by supervisors to be effective, the interim increase in capital requirements can be removed.

C. OTHER ASPECTS OF THE SUPERVISORY REVIEW PROCESS

1. SUPERVISORY TRANSPARENCY AND ACCOUNTABILITY

628. The supervision of banks is not an exact science, and therefore, discretionary elements within the supervisory review process are inevitable. Supervisors must take care to carry out their obligations in a highly transparent and accountable manner. Supervisors should make publicly available the criteria to be used in the review of banks' internal capital assessments. If a supervisor chooses to set target or trigger ratios or to set categories of capital in excess of the regulatory minimum, factors that may be considered in doing so should be publicly available. Where the capital requirements are set above the minimum for an individual bank, the supervisor should explain to the bank the risk characteristics specific to the bank which resulted in the requirement, why these risks are not adequately captured under Pillar 1, the contribution of each of the identified characteristics to the additional requirement, and any remedial action necessary.

2. INTEREST RATE RISK IN THE BANKING BOOK

629. The Committee has published extensive guidance relating to the management of banking risks. As part of the second consultative package, the Committee has revised its 1997 Principles for the Management of Interest Rate Risk. This revision has been issued for comment and is available as a Supporting Document entitled, *Principles for the Management and Supervision of Interest Rate Risk*.

630. The Committee remains convinced that interest rate risk in the banking book is a potentially significant risk, which merits support from capital. However, comments received from the industry and additional work conducted by the Committee have made it clear that there is considerable heterogeneity between internationally active banks in terms of the nature of the underlying risk and the processes for monitoring and managing it. In light of this, the Committee has come to the conclusion that it is at this time most appropriate to treat

interest rate risk in the banking book under the supervisory review pillar (Pillar 2) of the new framework. Nevertheless, supervisors who consider that there is sufficient homogeneity within their banking populations regarding the nature and methods for monitoring and measuring this risk could establish a mandatory minimum capital requirement.

631. The revised guidance on interest rate risk recognises banks' internal systems as the principal tool for the measurement of interest rate risk in the banking book and the supervisory response. To facilitate supervisors' monitoring of interest rate risk exposures across institutions, banks would have to provide the results of their internal measurement systems, expressed in terms of economic value relative to capital, using a standardised interest rate shock.

632. If supervisors determine that banks are not holding capital commensurate with the level of interest rate risk, they must require the bank to reduce its risk, to hold a specific additional amount of capital or some combination of the two. Supervisors should be particularly attentive to the sufficiency of capital of 'outlier banks' where economic value declines by more than 20% of the sum of Tier 1 and Tier 2 capital as a result of a standardised interest rate shock (200 basis points) or its equivalent, as described in the Supporting Document *Principles for the Management and Supervision of Interest Rate Risk*.

Guidance Related to the Supervisory Review Process
(Published by the Basel Committee on Banking Supervision)

1.	**Part B of the Amendment to the Capital Accord to Incorporate Market Risks**	January 1996, *Final*
2.	Core Principles for Effective Banking Supervision	September 1997, *Final*
3.	The Core Principles Methodology	October 1999, *Final*
4.	Risk Management Guidelines for Derivatives	July 1994, *Final*
5.	Management of Interest Rate Risk	September 1997, *Final*
6.	Risk Management for Electronic Banking	March 1998, *Final*
7.	Framework for Internal Controls	September 1998, *Final*
8.	Sound Practices for Banks' Interactions with Highly Leveraged Institutions	January 1999, *Final*
9.	Enhancing Corporate Governance	August 1999, *Final*
10.	Sound Practices for Managing Liquidity	February 2000, *Final*
11.	Principles for the Management of Credit Risk	September 2000, *Final*
12.	Supervisory Guidance for Managing Settlement Risk in Foreign Exchange Transactions	September 2000, *Final*
13.	Principles for the Management and Supervision of Interest Rate Risk	January 2001, *For Consultation*
14.	Operational Risk Sound Practices	*In Progress*

Note: the papers are available from the BIS website (www.bis.org/publ/index.htm).

Part 4: The Third Pillar – Market Discipline

A. GENERAL CONSIDERATIONS

633. Generally, the Committee is introducing disclosure ***recommendations***. In some instances, however, disclosure ***requirements*** are attached to the use of a particular methodology or instrument, and as such form pre-conditions for the use of that methodology or instrument for regulatory capital purposes. Pillar 3 contains disclosure recommendations and requirements for banks. Other parts of the framework set disclosure requirements and recommendations for ECAIs and supervisors. The location of disclosures and their status is summarised in the table below:

Table 1: Disclosures in the New Accord

Subject	Type	Location in Supporting Document
Scope of Application	Strong recommendations	Pillar 3
Capital	Strong recommendations	Pillar 3
Credit Risk – general	Strong recommendations	Pillar 3
Credit Risk – Standardised Approach	Requirements and strong recommendations	Pillar 3
Credit Risk Mitigation Techniques	Requirements and strong recommendations	Pillar 3
Credit Risk – IRB Approaches	Requirements	Pillar 3
Market Risk	Strong recommendations	Pillar 3
Operational Risk	Strong recommendations and, in future, requirements	Pillar 3
Interest Rate Risk in the Banking Book	Strong recommendations	Pillar 3
Capital Adequacy	Strong recommendations	Pillar 3
Asset Securitisation	Requirements	Asset Securitisation
ECAI Recognition	Requirements	Standardised Approach
Supervisory Transparency	Strong recommendations	Standardised Approach and Pillar 2

634. In order to strengthen the status of its recommendations, the Committee is proposing that every bank should be bound by the following overarching principle:

"Banks should have a formal disclosure policy approved by the board of directors. This policy should describe the bank's objective and strategy for the public disclosure of information on its financial condition and performance.[59] In addition, banks should implement a process for assessing the appropriateness of their disclosure, including the frequency of disclosure."

[59] The specific information for disclosure is contained in sections 5-8 of this paper

1. Core and supplementary disclosure recommendations

635. Core disclosures are those which convey vital information for all institutions and are important to the basic operation of market discipline. All institutions will be expected to disclose this basic information. Categories of supplementary disclosures are also defined. These disclosures are important for some, but not all, institutions, depending on the nature of their risk exposure, capital adequacy and methods adopted to calculate the capital requirement. The division between core and supplementary disclosures reduces the disclosure burden on institutions. However, supplementary disclosures may convey information that is of great significance for the operation of market discipline with respect to a particular institution, and as such should not be regarded as 'secondary' or 'optional' disclosures. Sophisticated internationally active banks will be expected to make the full range of core and supplementary information publicly available.

2. Materiality

636. Materiality will drive the decision on which disclosures are made. Information is regarded as material if its omission or misstatement could change or influence the assessment or decision of a user relying on that information. The materiality concept should not be used to "manage" disclosures. The "reasonable investor" test, i.e. in the light of particular circumstances, a "reasonable investor" would consider the item to be important, is a useful benchmark for ensuring that sufficient disclosure is made.

3. Frequency

637. Generally, the disclosures set out in this paper should be made on a semi-annual basis. Information is expected to be subject to a proper verification process on at least an annual basis, probably in the context of the annual report and financial statements. In certain categories of disclosure that are subject to rapid time decay, for instance risk exposure, and in particular for internationally active banks, quarterly disclosures are expected. This is likely to be especially relevant in the area of market risk exposure, where positions can move rapidly, and any general material changes are expected to be disclosed as soon as possible after the event.

638. There are also cases where annual disclosure may be sufficient. For instance, information on an institution's risk management framework may be disclosed annually, and banks with a stable risk profile may make annual disclosures. Institutions should explain why they believe annual frequency is sufficient. In many instances annual and half-yearly reports and accounts can be used as the mechanism for disclosure, but there may be cases, especially with more frequent disclosures, where an alternative method is needed. Banks are encouraged to be flexible in this regard, and to consider the opportunities offered by electronic media to make relevant disclosures on a frequent basis.

639. Where banks do not comply with the disclosure recommendations under Pillar 3, the Committee expects a supervisory response aimed at remedying this situation. The strength of this response should depend on the nature and implications of the non-compliance, and the time it lasts. There is a "spectrum" of responses available to supervisors ranging from "moral suasion" through dialogue with the bank's management to reprimands or financial penalties. The Committee will continue to work with accounting authorities, including the

International Accounting Standards Committee (IASC), which is reviewing its disclosure standard for banks, IAS 30[60], to promote consistency between disclosure frameworks. To the extent that disclosure recommendations are recognised in International Accounting Standards, the enforceability of the standards will be very much enhanced.

4. TEMPLATES

640. A suggested format for reporting, in the form of templates, is provided in the Supporting Document *Pillar 3: Market Discipline*. Banks are invited to make use of the templates in their disclosures to encourage comparability.

641. The requirements and recommendations in this paper fall into four broad areas: scope of application, structure of capital, risk exposures and capital adequacy.

B. DISCLOSURES - SCOPE OF APPLICATION OF THE NEW ACCORD

642. It is important that banking groups' disclosure of the scope of application of capital requirements be extensive and explicit. This should ensure that market participants can understand (i) which corporate entities are within a banking group, and hence that the risks within those entities, are captured, and (ii) the approach used to capture those entities.

643. A banking group should disclose:

1. CORE DISCLOSURES

- The top corporate entity in the group to which regulatory capital requirements apply;
- the entity(ies) to which regulatory capital requirements apply on a sub-consolidated basis;
- the entities within the group, e.g. securities, insurance and other financial subsidiaries, that are not included within the consolidated approach (and the banking group's percentage interest in the voting shares in those entities);
- the particularities of how entities that are not included within the consolidated approach are captured within the capital adequacy calculations, e.g. deduction of the banking group's equity and other regulatory capital investments in such entities;
- in the event a method other than the deduction method is used, the impact of the application of such other method as compared to the deduction method;
- in the event surplus capital, that is capital in excess of the regulatory capital required for entities that are excluded from the consolidated group, is recognised (i.e. given credit for), the impact on the group's capital adequacy position;

[60] *Disclosures in the Financial Statements of Banks and Similar Financial Institutions*, International Accounting Standards Committee, 1990 (reformatted 1994).

- the entities within the group (and the banking group's percentage interest in the voting shares in those entities) that are (a) pro-rata consolidated, or (b) given a deduction treatment;
- deductions from each of Tier 1 and Tier 2 capital for unconsolidated entities;
- the aggregate amount deducted from capital for commercial entities that exceed materiality limits;
- deductions from each of Tier 1 and Tier 2 capital for such commercial entities.

2. SUPPLEMENTARY DISCLOSURES

- Whether any subsidiaries that are not included in the consolidation, i.e. that are deducted, meet their regulatory capital requirements.

C. DISCLOSURES - STRUCTURE OF CAPITAL

644. Disclosure about the nature, components and features of capital provides market participants with important information about banks' abilities to absorb financial losses.

645. Banks should disclose:[61]

1. CORE DISCLOSURES (QUANTITATIVE)

- the amount of Tier 1 capital, with separate disclosure of:
  - paid-up share capital/common stock;
  - disclosed reserves;
  - minority interests in the equity of subsidiaries;
  - innovative Tier 1 capital instruments grandfathered (according to Press Release October 1998);
  - innovative Tier 1 capital instruments not grandfathered (according to Press Release October 1998);
  - goodwill and other amounts deducted from Tier 1.
- the total amount of Tier 2 and 3 capital;
- deductions from Tier 1 and Tier 2 capital;
- overall eligible capital.

[61] The amounts of the components and structure of capital should be based on the definitions in the Basel Capital Accord.

2. CORE DISCLOSURES (QUALITATIVE)

- Their accounting policies for the valuation of assets and liabilities, provisioning and income recognition;
- information on consistency of accounting principles between years;
- whether unrealised gains are included in Tier 1 capital;
- whether unrealised losses have been deducted from the Tier 1 capital;
- what influence deferred taxes have on Tier 1 capital;
- the nature and features of innovative Tier 1 capital instruments.

3. SUPPLEMENTARY DISCLOSURES

- The amount of Tier 2 capital (split between Upper and Lower Tier 2), with separate disclosure of material components;
- the amount of Tier 3 capital.

4. FOR BOTH CORE AND SUPPLEMENTARY DISCLOSURES

646. Banks should disclose summary information about the terms and conditions of the main features of all capital instruments, especially in the case of innovative, complex or hybrid capital instruments. Information disclosed should provide a clear picture of the loss-absorbing capacity of capital instruments and include any conditions that may affect the analysis of banks' capital adequacy. This would include information on:

- maturity (including call features);
- level of seniority;
- step-up provisions;
- interest or dividend deferrals and any cumulative characteristics;
- use of Special Purpose Vehicles (SPVs);
- discussion of key "trigger" events (i.e. events which may cause the activation of significant clauses or penalties which may affect the nature or cost of capital instruments);
- fair value and terms of derivatives embedded in hybrid capital instruments.

D. DISCLOSURES - RISK EXPOSURES AND ASSESSMENT

647. The following sets out disclosure requirements and recommendations for four key banking risks: credit, market, operational[62] and interest rate risk in the banking book. For

[62] Operational Risk is defined as the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events.

each risk type, the disclosures that all banks should make regarding their exposures are outlined. This is followed by recommendations for banks using standardised assessment approaches and recommendations and requirements for banks using more sophisticated (internal) approaches. Disclosure requirements and recommendations for the recognition of credit risk mitigation techniques are also set out.

1. CREDIT RISK IN THE BANKING BOOK

648. Under the New Accord, there will be broadly two categories of approach to credit risk: a standardised approach, and an approach using banks' own internal ratings. Within the internal ratings based (IRB) approach a number of variants will exist, ranging from a foundation to more advanced IRB approaches. The extent and format of the credit risk disclosures will be heavily influenced by the particular regulatory capital regime which the bank is under for the purposes of credit risk.

649. Credit risk disclosure recommendations/requirements are presented under three headings: disclosures applicable to all banks; disclosures applicable to banks using the standardised approach; and disclosures applicable to banks using IRB approaches.

(i) Disclosures applicable to all banks

650. Banks should disclose:

(a) Core disclosure (quantitative)

- Total unweighted credit exposures, before and after recognised credit risk mitigation, plus total risk weighted assets, in current and previous period. Broken down by (i) loans, commitments, and other non derivative exposures, (ii) securities and (iii) OTC derivatives (this breakdown also applies to the following 2 bullets);
- the cross-border distribution of its credit exposures (using the same geographic breakdown that the bank uses to manage its cross-border exposures and/or for accounting purposes, e.g. by geographic region, by country, etc.) in current and previous period;
- the industry sectors or counterpart types distribution of its credit exposures (using a breakdown consistent with its own internal classifications and/or accounting purposes, e.g. financial services firms, manufacturing, technology, etc.) in current and previous period;
- the maturity distribution of its credit exposures, e.g. up to one year, over one year and up to five years, over five years and up to ten years and over ten years;
- the amount of past due/impaired loans either gross or net of provisions, e.g. by counterparty type or industry sector in current and previous period;
- the amount of the allowance for credit losses, including the amounts of provisions (specific distinguished from general), recoveries and charge-offs in current and previous period.

(b) Core disclosures (qualitative)

- The structure, management and organisation of its credit risk management function;

- its strategies, objectives and practices in managing and controlling its credit risk exposure;
- information on techniques and methods for managing past due and impaired assets;
- information on the definition of non performing, past due and impaired loans, and definitions of default;
- the definitions of specific and general provisions used – including, if applicable, trigger events, and statistical methods used in the estimation process.

(c) Supplementary disclosures

- An indication of average exposures over the period;
- a more detailed breakdown of exposures by type, e.g. loans, investments, contingent items, repos and types of derivative (in addition to the core breakdown);
- information about significant concentrations of credit risk, or any further information about the lumpiness of its portfolios;
- more detailed breakdowns of the geographic, industry/counterparty distributions;
- quantitative information on the maturity breakdown for particular types of portfolios;
- more detail on the number of days overdue with respect to past due and/or impaired loans;
- volumes of credit risk transferred into securitisation vehicles;
- credit protection purchased using credit derivatives;
- qualitative and quantitative information about its credit scoring or portfolio credit risk measurement models, including counterparty grading systems used by banks (or ECAI ratings if applicable).

(ii) Disclosures applicable to banks using the standardised approach

651. Banks must disclose:

(a) Disclosure requirements(qualitative)

- The names of all ECAIs or other sources of external assessments used for risk weighting purposes;
- the types of exposure for which each rating agency is used (e.g. some rating agencies might be used only for certain geographic or sectoral exposures);
- the alignment of different agencies alphanumerical scales with risk buckets;

(b) Disclosure requirements (quantitative)

- The percentage of outstandings in each risk bucket covered by each agency's ratings.

(c) Disclosure recommendations

A bank should disclose:

- any significant changes in the list of rating agencies used by the bank for portfolio outstandings (not otherwise disclosed) since the previous period's disclosures (and the reasons for such changes);
- the policy for translating public ratings on particular bond issues into borrower ratings on its loans;
- a comprehensive set of guidelines concerning the procedure to be used in transferring public issue ratings onto comparable assets in the banking book;
- the average default rates experienced on rated credits in each rating category, together with the definition of default;
- the default rates experienced on non-rated loans.

(iii) Disclosures applicable to banks using IRB approaches[63]

652. For the IRB approaches the Committee has set disclosure requirements. Banks must disclose:

(a) Qualitative disclosures: general information on methodology and key inputs

- Supervisor's acceptance of approach;
- for each portfolio[64], whether an own estimation or a supervisory vector for LGD and/or EAD are used;
- for each portfolio, methods for estimation and validation of PD (as well as LGD and EAD);
- required data for estimation of the model, internal use by bank of estimates besides for IRB capital purposes, responsibility for and independence of rating process;
- relation between internal and external ratings;
- the process for managing and recognising credit risk mitigation;
- for each portfolio, employed definitions of default (as well as EAD and LGD) used internally for each portfolio in the IRB framework, and mapping of internal and reference definitions of default (as well as EAD and LGD) including the methodology used by the bank, if the employed definition deviates from the reference definition; and
- banks in supervisory approved transition between internal ratings based approaches must disclose: the specific minimum requirements to which the transition applies, the areas and the degree of missing compliance, and the progress made towards compliance with the full set of minimum requirements.

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63 In section (iii) bracketed items relate only to the advanced IRB approaches.

64 A portfolio is a set of exposures or business lines recognised separately in the IRB approach, and which are associated with a separate risk weight schedule.

(b) **Quantitative disclosures part (i): required information for risk assessment**

- The percentage of nominal exposure covered by IRB approach;
- for each portfolio, PD (and LGD) assumptions related to each PD (and LGD) grade shown;
- for each portfolio, for each PD (LGD) bucket, nominal exposure amount, before and after recognised credit risk mitigation, as well as weighted average maturity and the granularity adjustment for the whole portfolio;
- for the retail portfolio (for which there is no foundation approach), as far as nominal amounts are concerned,[65] values for PD and LGD or EL are shown for each risk segment;
- in the advanced approach, for credits with variable exposure, EAD assumptions, used for estimation, nominal exposure amounts and EAD estimates both before and after recognised credit risk mitigation;
- for the retail portfolio, for credits with variable exposure, nominal exposure amounts and values for PD, LGD and EAD or EL for each risk segment; and
- the distribution of external rated obligors over internal PD rating classes.

(c) **Quantitative disclosures part (ii): *ex post* performance as an indication of quality and reliability**

- For each portfolio and each PD (LGD) grade, (i) the number of defaults, (and, in the advanced approach, (ii) the actual exposure amount at default and (iii) the actual average LGD and other summary statistics of distribution of LGD, such as standard deviation and 10th, 50th and 90th percentile) at 1,2 and 3 year intervals;
- the percentage of losses in each PD/LGD cell which are fully worked out;
- the number of defaults for all PD (and LGD) grades exposures as slotted at a predetermined historical reference point, 1 year prior to default (instead of *at the time of default)*;
- in the advanced approach, summary statistics and distribution of **actual** LGD, such as standard deviation and 10th, 50th and 90th percentile, also weighted with exposure. For the retail portfolio, values for PD, LGD and EAD[66] or EL should be disclosed for each risk segment;
- for each portfolio, for each PD-LGD grade, (i) the number of facilities that defaulted and (ii) facilities and drawn amount at default must be disclosed. For the retail portfolio, values for number of facilities that defaulted and facilities and drawn amount at default for each risk segment. For each portfolio, as far as relevant, summary statistics of distribution of EAD, also weighted with exposure, along with the number of borrowers;
- for each portfolio, distribution of borrowers across rating grades for the last 1, 2 and 3 years;
- for each portfolio, the distribution of rating migrations for the last 1, 2 and 3 years;

[65] For credits with variable exposure, see below.

[66] As far as variable exposures are concerned.

- in the advanced approach, distribution of rating migrations weighted with nominal exposure and EAD, respectively, both after 1, 2 and 3 years; and
- where banks use their own LGD estimates, a comparison between economic capital, actual capital held and minimum capital requirements and summary indicators of economic capital attributed to major lines of business.

(iv) Credit Risk Mitigation Techniques

653. The Committee has set both requirements and recommendations in the area of credit risk mitigation techniques.

(a) Requirements

654. The following disclosures are required for banks taking advantage of risk mitigation in the standardised and foundation IRB approaches, and also have relevance for banks on the advanced approach. Where banks on the advanced approach are already required to provide comparable information under Section III, they need not replicate the disclosures in this section.

Qualitative disclosures

655. A bank must provide information on:

- its overall strategy and process for managing collateral including, in particular, the monitoring of collateral value over time;
- key internal policies for the recognition of collateral, for example, the ratio of underlying exposure to collateral (i.e. LTV ratio) and maturity mismatches; and
- its strategy and process for monitoring the continuing credit worthiness of protection providers and administering the guarantees and credit derivatives as required for collateralised transactions.

Quantitative disclosures

656. A bank must provide information on:

- its total exposures, the amount of exposure secured by collateral and on-balance sheet netting contracts, and risk weighted assets excluding and including the effects for collateral/on-balance sheet netting. These values must be disclosed by risk weight bucket/internal risk grade;
- the amount of exposure covered by guarantees/credit derivatives, risk weighted asset excluding and including the effects of guarantees/credit derivatives. These values must be disclosed by risk weight bucket/internal risk grade and by type of guarantor/protection provider; and
- the type of regulatory calculation methodologies it has selected (i.e. simple/comprehensive, standard supervisory/own estimate haircuts).

(b) Recommendations

Qualitative disclosures

657. A bank is recommended to disclose information on:

- its overall strategy and process for managing on-balance sheet netting contracts, if effects of on-balance sheet netting are material.

Quantitative disclosures

658. A bank is recommended to disclose information on:

- net exposure amounts (after effects for collateral/on-balance sheet netting) used for internal risk management purposes by risk weight bucket/internal risk grade;
- total annual recovery amounts from collateralised transactions;
- exposure amounts (total, risk weighted assets excluding/including collateral) by types of eligible collateral, by geographical grouping used by the bank for internal management purposes;
- total and net exposures, and risk weighted assets excluding/including on-balance sheet netting of loans and deposits should be disclosed separately along risk weight buckets/internal risk grade. The types of counterparty should also be disclosed;
- total exposures covered by guarantees/credit derivatives, risk weighted assets excluding and including the effects for guarantees/credit derivatives by geographical and industrial sector; and
- its main guarantors/protection providers.

(v) Asset securitisation

659. The following disclosures are required to be made by banks in their statutory accounts, whether they act as originators or sponsor/third arties, and by issuers (SPVs) in their offering circulars.

a) Disclosures by originators

	Disclosure	*[67]	Rationale	Desired Location
	Quantitative data on the • Aggregate amount of loans and commitments securitised (nominal, notional and outstanding balance) broken down into synthetic and traditional securitisation categories. • If appropriate, this should be broken down further into term and revolving assets. • Where revolving, the amount of seller interest should be disclosed. • Amount of funding provided by securitisation activity. All data should be disclosed by deal if material.	A D	Information on the amount of assets securitised would provide a bank's counterparties an indication of the level of the bank's activity in the securitisation market and the amount of risk transferred. Data on the amount of funding provided will indicate extent of reliance on securitisation activity.	Statutory Accounts
	Asset types securitised. By deal if material.	A D	Disclosure would assist in ascertaining the risk profile of the bank.	Statutory Accounts
	Roles played by the originator in relation to its securitisation activities (e.g. servicer, provider of credit enhancement, liquidity provider, swap provider etc.).	A D	Provide information as to the extent of the links between the originator and the scheme and therefore highlight potential scope for implicit recourse.	Statutory Accounts

A - Aggregate; D - By Deal, or both

4	Aggregate data regarding the maximum amount of credit exposure arising from recourse/credit enhancement provided to the transactions coupled with a declaration that support is limited to these contractual obligations only. Disclose data on credit enhancement by deal if material.	A D	In order to give counterparties a true picture of a bank's risk profile, the amount of recourse/enhancements must be disclosed. A declaration regarding further support should assist in preventing further support.	Statutory Accounts
5	Aggregate date regarding the size and nature of liquidity facilities provided. Disclose by deal if material.	A D	Where a jurisdiction allows originators to provide liquidity facilities to their own securitisations, this would provide information as to the links with the scheme and also the liquidity profile of the bank.	Statutory Accounts

(b) Disclosures by sponsors/third parties

660. The following disclosures are required for all sponsors (and for some third parties). These disclosures are required for those securitisations where the bank has a material involvement in the transaction i.e. providing liquidity or credit enhancement. If banks perform only roles with regard to that securitisation, those roles should be disclosed. However where banks simply perform a non-material role, e.g. as swap counterparty, the bank will not be required to make any securitisation-specific disclosures.

	Disclosure	*	Rationale	Desired Location
1	Data regarding the maximum amount of credit exposure arising from recourse/credit enhancement provided to the transactions coupled with a declaration that enhancement is limited to the contractual amounts specified. Disclose by deal if material.	A D	In order to give counterparties a true picture of a bank's risk profile the amount of recourse/enhancements must be disclosed if sponsor wishes to provide such facilities. A declaration regarding further support should assist in preventing further support.	Statutory Accounts
2	Size and nature of liquidity facilities. By deal if appropriate.	A D	Where a bank provides liquidity facilities to commercial paper conduits, the size and nature of the commitments should be disclosed. The aim of this disclosure is to give counterparties an indication of a bank's contingent liabilities.	Statutory Accounts

(c) Disclosures by issuers (i.e. SPVs)

661. The following disclosures are required for all issuers.

	Disclosure	*	Rationale	Desired Location
1	The names of all rating agencies or other sources of external assessment used for risk weighting purposes.	D	Disclosure is required to ensure that only reputable agencies (those with market credibility) are employed.	Offering Circular
2	A summary of the legal structure of the transaction.	D	Where the legal structure of a transaction is transparent, the risks involved in that the transaction become clearer to investors.	Offering Circular
3	The form of transfer used, in particular any residual links to or rights held by the originator.	D	The method of transfer can have an important bearing upon the risks assumed by the buyer and the seller, as different methods achieve a “cleaner break” than others.	Offering Circular
4	Asset types securitised, selection criteria and substitution criteria.	D	Ensure investors understand the risk that they are undertaking.	Offering Circular
5	The names of all parties participating in the structure of the transaction and their associated role: originator, servicing agent, provider of credit enhancement, provider of liquidity, swap counterparties, provider of GICs, security trustee, underwriter & marketmaker.	D	Disclosure of the parties involved in the transaction would assist the investor in assessing the robustness of the transaction.	Offering Circular
6	The amount and form, rating (where obtained) of the credit support within the transaction. With declaration that credit support is only as outlined – no further support is possible.	D	In order to assess the adequacy of expected loss cover on the portfolio, an issuer should disclose the structure of enhancements. Where enhancements are unfunded, e.g. by an insurer, the identity of the counterparty should be disclosed.	Offering Circular
7	The amount, form, rating (where obtained) and position in payment ranking of the liquidity facility (if any) supporting the transaction.	D	Investors must be made aware of the size and type of facility incorporated into the transaction, so that they can assess the quality of protection in the event of market disruption. The priority of the liquidity facility in the payment waterfall must also be disclosed.	Offering Circular
8	The early amortisation triggers on the pool.		Investors should be made aware of the triggers on the pool to ensure that they understand the limit to the risk that they are accepting.	Offering Circular

2. MARKET RISK

662. The *Amendment to the Capital Accord to incorporate market risks* (the Amendment) sets out a standardised method and an internal models approach (IMA) to market risk. The market risks covered are interest rate risk and equity risk in the trading portfolios and currency risk and commodity risk for the whole bank.

(i) Disclosures applicable to banks under the standardised measurement method

663. Banks should disclose:

(a) Core disclosures

- Which portfolios are covered by the standardised approach;
- for each portfolio, the measurement methodologies used. For instance, whether the bank has applied the maturity or the duration method for the measurement of interest rate risk in the trading book;
- the capital requirements for each of interest rate risk, equity position risk, foreign exchange risk and commodity risk;
- the capital charge for option positions.

(b) Supplementary disclosure

- The movement of portfolios between the standardised and internal models approach;
- the capital charges specified for different risk categories or portfolios. For instance, for interest rate risk in the trading book, the risk categories are the distinction between general and specific market risk and the different points on the yield curve. For equity positions the standardised approach gives risk weights for general and specific market risk and makes a further distinction between index and arbitrage positions. In a similar way, positions in foreign exchange and commodities can be disaggregated;
- the daily variability of profits and losses on the trading positions concerned.

(ii) Disclosures applicable to banks under the Internal Models Approach (IMA)

664. Banks should disclose:

(a) Core disclosures

- Which portfolios are covered by the IMA;
- for each portfolio covered by the IMA, the characteristics of the models used and the stress test program;

- the scope of acceptance granted by the supervisor;
- in aggregate, the level and variability of market risk for IMA portfolios in terms of value-at-risk data and the backtesting results.

(b) Supplementary disclosures

- The movement of portfolios between the IMA and the standardised approach;
- the treatment of non-linear risks, specific risk and event risk;
- the application of stress test results;
- the daily variability of profits and losses on IMA positions;
- if applicable, the value-at-risk and the back test results for different regions and/or portfolios;
- a description and quantification of important "outliers" in the backtest.

3. OPERATIONAL RISK

665. Three different approaches for the determination of a capital charge for operational risk have been proposed. The simplest approach, the ***Basic Indicator Approach,*** links the capital charge for operational risk to a single risk indicator (e.g. gross income) for the whole bank. The ***Standardised Approach*** is a more complex variant of basic indicator approach that uses a combination of financial indicators and institutional business lines to determine the capital charge. The ***Internal Measurement Approach*** incorporates, within a supervisory-specified framework, an individual bank's internal loss data into the calculation of its required capital. Banks must meet certain criteria in order to be allowed to apply more sophisticated approaches. Ultimately, disclosure requirements will be a pre-condition for the use internal measurement approaches.

666. Banks should disclose:

(i) Core disclosures

- The approach(es) a bank qualifies for;
- key elements of the operational risk management framework. This should include information about:
  - risk policies;
  - the organisational structure;
  - risk reporting system;
  - the documentation of risk management procedures;
  - effective use of an information system;
  - the organisation (reporting framework) and responsibilities of an independent risk control unit;
  - independent reviews of the risk management systems at least annually;

- active involvement of board of directors and senior management in taking responsibility for operational risk;
- any operational risk mitigation techniques used;

- its operational risk exposure (by business line). A proxy for the risk exposure is the capital charge;
- the operational risk regulatory capital charge as a percentage of total minimum regulatory capital.

(ii) Supplementary disclosures

- Actual annual operational losses (per business line).

4. INTEREST RATE RISK (IRR) IN THE BANKING BOOK

667. In this section the core objective of disclosure is to facilitate market participants' assessment of the banks' interest rate risk profile for the banking book. Since banks will employ a standardised rate shock for each currency, risk measures across banks should be fairly comparable. These recommendations apply to all banks, even if they are not required to hold additional capital under the Pillar 2 guidance.

(i) Qualitative disclosures: general information on methodology and key inputs

668. Banks should disclose:

(a) Core disclosure

- The risk management structure for overseeing IRR in the banking book including lines of responsibility, risk measurement systems utilised, policies and strategies for managing IRR, including limits and frequency of IRR measurement;
- the nature of IRR in the banking book and key assumptions employed in its measurement. In particular, identifying the size of portfolios with embedded optionality and the empirical or judgmental assumptions employed to model them, such as assumptions regarding loan prepayments and behaviour of non-maturity deposits;
- the use of hedging programs including their characteristics, rationale and effectiveness;
- a general overview of the characteristics of the internal measurement systems used. Discussion of how the measurement systems are used to establish the risk measure;
- a description of methodology chosen to incorporate the supervisory rate scenario: the standardised parallel rate shock or actual rate moves over the past 6 years. Also, identify the number of separate rate scenarios that were incorporated to account for material currency exposures.

(b) Supplementary disclosure

- Any sensitivity analysis employed with regard to key assumptions and their effect on results;
- the use of other stress test scenarios including twists in the yield curve, larger rate moves, etc.

(ii) Quantitative disclosures part (i): required information for risk assessment

669. Banks should disclose:

(a) Core disclosure

- The size of the standardised interest rate shock by currency;
- the absolute increase (decrease) in economic value for the upward and downward rate shocks;
- the absolute increase (decrease) in earnings for the upward and downward rate shocks;
- increase (decrease) in economic value as a percent of both economic value and actual regulatory capital;
- increase (decrease) in earnings as a percent of earnings;
- the bank's internal limits on IRR exposure in terms of both economic value and earnings;
- notional value of derivatives used for hedging banking book assets or liabilities.

(b) Supplementary disclosure

- If applicable, these same metrics for alternative stress test scenarios with regard to the rate scenario and behavioural assumptions.

(iii) Quantitative disclosures part (ii): *ex post* performance as an indication of quality and reliability

(a) Core disclosure

- If applicable, goodness of fit of the models and/or validation of assumptions used.

(b) Supplementary disclosure

- The core disclosure, but specified for different currencies and/or portfolios.

E. DISCLOSURES: CAPITAL ADEQUACY

670. Capital ratios and other information relevant to capital adequacy should be disclosed on a consolidated basis. This is a core disclosure that should be made by each internationally active bank within a banking group and by holding companies of banking groups, as defined in the New Accord. Capital requirements disclosed should be calculated in accordance with the methodology set out in the New Accord.

671. Banks should disclose:

1. CORE DISCLOSURE (QUANTITATIVE)

- Capital requirements for credit risk for balance sheet assets;
- capital requirements for credit risk for off-balance-sheet instruments;
- capital requirements for market risk, including disclosure of capital charges for component risk elements;
- capital requirements for operational risk;
- total capital requirements;
- total eligible capital;
- percentage of total capital to total capital requirements.

672. Banks under the internal models approach should disclose their individual capital requirements for component elements of market risk.

2. SUPPLEMENTARY DISCLOSURES

673. Banks should also provide an analysis of factors impacting on its capital adequacy position and economic capital allocations. This would include:

- changes in capital structure and the impact on key ratios[68] and overall capital position;
- information about its contingency planning;
- its capital management strategy including future capital plans (where appropriate);
- the amount of economic capital allocated to different transactions, products, customers, business lines, or organisational units (depending on the bank's methodology).

674. A summary comparison/analysis of internal estimates of *aggregate* economic capital requirements versus reported capital amounts versus regulatory requirements is also a useful disclosure.

[68] Particular ratios which should be considered will vary depending upon the circumstances of individual institutions and the specific changes in their capital structure. However, examples of relevant ratios which should be considered might include tier 2 capital /tier 1 capital, tier 1 capital/total capital and deductions from tier 1 and tier 2 capital/ total capital.