

Capital Adequacy Framework

(Internal Models Based
Approach)

Prudential Supervision Department
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PART 1 – INTRODUCTION

- 1.1 This document sets out the methodology to be used by locally incorporated registered banks that have been accredited to use the internal models based approaches to calculating capital ratio requirements. This methodology is to be used for the purposes of determining these banks' compliance with conditions of registration relating to capital and for disclosing information about capital.

GENERAL REQUIREMENTS

- 1.2 Where questions arise as to whether or not particular arrangements come within the ambit of the definitions set out in this document, attention should be directed to the substance of the arrangement, not merely the legal form.

APPLICATION

- 1.3 A registered bank that has been accredited to use the internal models based approaches to calculating capital ratio requirements must use the methodology set out in this document to calculate the capital ratios both for the banking group and for the registered bank as defined in this part.

Banking group

- 1.4 For the purpose of calculating capital ratios for the registered bank on a consolidated basis, the banking group is as defined for the purposes of the registered bank's conditions of registration (subject to any adjustments required as a result of the bank's involvement in insurance, securitisation or funds management activities).

Registered bank

- 1.5 Sections 1.6 and 1.7 apply for the purposes of calculating capital ratios for the registered bank on a solo basis.
- 1.6 Unless section 1.7(b) applies, a subsidiary—
- (a) must be consolidated with the registered bank if—
 - (i) it is funded exclusively by the registered bank; and
 - (ii) it is wholly owned by the registered bank; or
 - (b) may otherwise be consolidated with the registered bank only if there is a full, unconditional and irrevocable cross guarantee between the subsidiary and the registered bank.
- 1.7 A subsidiary must not be consolidated with the registered bank—
- (a) other than in accordance with section 1.6; or
 - (b) if a subsidiary above it in the chain of ownership is not exclusively funded by the registered bank.
- 1.8 For the purpose of sections 1.6 and 1.7:
- (a) *funded exclusively by the registered bank* means that a subsidiary must have no liabilities (including off-balance sheet obligations) other than to:
 - (i) the registered bank;
 - (ii) the Inland Revenue Department; or

- (iii) trade creditors, but only if the aggregate exposure of the subsidiary to trade creditors does not exceed 5% of the subsidiary's shareholders' funds.
- (b) *wholly owned by the registered bank* means a subsidiary is 100% owned by—
 - (i) the registered bank; or
 - (ii) another subsidiary that is ultimately owned by the registered bank through a chain of ownership where each entity is 100% owned by its parent.

PART 2 – CAPITAL DEFINITION

Introduction to Part 2

2.1 The following sections and subparts provide a definition of capital to be used in calculating capital adequacy ratios. Subpart 2H sets out the process for approval of capital instruments. This part contains the minimum requirements that instruments and reserves must meet to qualify as regulatory capital. Additional terms included in an instrument will not disqualify an instrument from being treated as regulatory capital, provided that those terms do not affect the instrument's compliance with the requirements contained in this part or in any other part of this document.

Definitions for Part 2

2.2 In this part (and subparts of this part):

- (a) “Act” means the Reserve Bank of New Zealand Act 1989.
- (b) “affiliated insurance entity” and “affiliated insurance group” have the meanings given in part 6.
- (c) “associated” in relation to a funds management or securitisation vehicle has the meaning given to association in part 5.
- (d) “control or significant influence” means:
 - (i) the ability to directly or indirectly appoint 20% or more of the members of the governing body (e.g. Board of directors) of an entity; or
 - (ii) the power to influence the financial and operating policy decisions of an entity; or
 - (iii) holding a direct or indirect qualifying interest in 20% or more of the voting securities of an entity.

Where the employees or directors of one entity (entity A) constitute a significant portion of the Board of another entity (entity B), entity A will *prima facie* be considered to exert control or significant influence over entity B.

- (e) “financial institution” has the same meaning as in section 2(1) of the Act.
- (f) “maturity or maturity date” includes a maturity date or scheduled redemption date.
- (g) “non-bank deposit taker” has the meaning given for “deposit taker” in the Act until such time as the Non-bank Deposit Takers Act comes into force, at which time “non-bank deposit taker” will have the meaning given for “NBDT” in the Non-bank Deposit Takers Act.
- (h) “parent entity” means the ultimate parent of the registered bank or an entity that is ultimately fully owned by the ultimate parent of the registered bank.
- (i) “related party” means an entity over which any member of the banking group (or the registered bank, in the case of solo capital) exercises control or significant influence, or an entity that exercises control or significant influence over any member of the banking group (or registered bank, in the case of solo capital).

capital). It includes a parent company, sister entity, a subsidiary or any other affiliate.

- (j) “regulatory consolidation”: an entity will be considered to meet the requirement of regulatory consolidation if the assets of the entity are included in the calculation of risk-weighted assets of the registered bank or banking group, as relevant, for capital adequacy purposes.
- (k) “repay” includes to repay by way of a call, acquisition or redemption, and repayment and repaid have corresponding meanings.
- (l) “risk-weighted assets” = risk-weighted on- and off-balance sheet credit exposures + 12.5 × total capital charge for market risk exposure + 12.5 × total capital requirement for operational risk + supervisory adjustment.
- (m) “significant investment” is an investment in the ordinary shares of another entity that exceeds 10% of the issued ordinary shares of that entity.
- (n) “special purpose vehicle” and “SPV” mean a single purpose non-operating entity established for the principal purpose of raising regulatory capital for the banking group.
- (o) “third party” means an entity that is not the registered bank or a member of the banking group.
- (p) “written off” means written off, extinguished or discharged.

Capital

2.3 Total regulatory capital (total capital) is defined as the sum of the following categories:

- (a) Tier 1 capital (going-concern capital), which comprises:
 - (i) Common Equity Tier 1 capital; and
 - (ii) Additional Tier 1 capital; and
- (b) Tier 2 capital (gone-concern capital).

2.4 Each of the three categories in section 2.3 ((a)(i), (a)(ii) and (b)) is calculated net of associated regulatory adjustments. For each of the three categories of capital, there are requirements set out in this part that instruments must meet to be included in the relevant category.

2.5 Capital instruments that do not meet the requirements set out in this part may also be included in regulatory capital, subject to the following conditions:

- (a) The instrument was issued before 12 September 2010.
- (b) The instrument meets the requirements of the Reserve Bank of New Zealand document “Capital Adequacy Framework (Internal Models Based Approach)” (BS2B) dated August 2012.
- (c) The instrument does not have a call option in combination with a step-up on or after 12 September 2010 and prior to 1 January 2013.

- (d) If the instrument has a call option in combination with a step-up at any date from 1 January 2013 onwards, it is to be included in regulatory capital only until the date of the call option (subject to subsection 2.5(e) below).
- (e) Recognition of non-qualifying capital instruments will be phased out beginning on 1 January 2014. Fixing the base at the nominal amount of such instruments outstanding at 1 January 2013¹ that would have been recognised as regulatory capital on 1 January 2013 if the document “Capital Adequacy Framework (Internal Models Based Approach)” (BS2B) dated August 2012 was still current, their recognition is capped at 80% of that base from 1 January 2014; 60% from 1 January 2015; 40% from 1 January 2016; 20% from 1 January 2017; and from 1 January 2018 onwards the instrument must not be included in regulatory capital.
- (f) The base and caps referred to in (e) above must be calculated separately for the sum of all Tier 1 instruments that no longer meet the criteria for recognition as Tier 1 capital, and for the sum of all Tier 2 instruments that no longer meet the criteria for recognition as Tier 2 capital.

2.6 An instrument may only be included in regulatory capital in accordance with section 2.5 if the registered bank has received the prior written approval of the Reserve Bank in accordance with subpart 2H.

Common Equity Tier 1 capital

2.7 Common Equity Tier 1 capital is the highest quality of capital and must:

- (a) provide a permanent and unrestricted commitment of funds;
- (b) be freely available to absorb losses; and
- (c) not impose any unavoidable servicing charge against earnings.

2.8 Common Equity Tier 1 capital is defined as the sum of subsections 2.8(a)-2.8(e), less subsection 2.8(f) as set out below:

- (a) Paid-up ordinary shares, issued by the registered bank, that meet the criteria in subpart 2A.
- (b) Share premium resulting from the issue of ordinary shares included in Common Equity Tier 1 capital.
- (c) Retained earnings net of any appropriations such as tax payable, dividends to be paid or transfers to other reserves.
- (d) Accumulated other comprehensive income and other disclosed reserves including, but not limited to, reserves that are created or increased by appropriations of retained earnings and unrealised gains and losses on measuring available-for-sale assets in accordance with NZ IAS 39. However, the following items must be excluded from Common Equity Tier 1 capital: reserves that are earmarked to particular assets or particular categories of

¹ Any amortisation of Tier 2 instruments that would have been required had the document “Capital Adequacy Framework (Internal Models Based Approach)” (BS2B) dated August 2012 still been current must be taken into account.

banking activities; reserves held on account of any assessed likelihood of loss; and revaluation reserves that may be included in Tier 2 capital under subsection 2.16(d) of this document.

- (e) Interests arising from the issue of ordinary shares to third parties (minority interests) by a fully consolidated subsidiary (calculated in accordance with subpart 2D) that meet the eligibility criteria in section 2.29 (not applicable for calculating the registered bank's solo capital ratio).
- (f) Regulatory adjustments calculated in accordance with section 2.9.

2.9 The following items must be deducted in calculating Common Equity Tier 1 capital:

- (a) Goodwill and other intangible assets, including any goodwill included in the valuation of significant investments in the regulatory capital of a bank, non-bank deposit taker, or insurance entity (or overseas equivalent), or in the equity of another entity that is a financial institution that is outside the scope of regulatory consolidation. The full amount is to be deducted net of any associated deferred tax liability that would be extinguished if the assets involved became impaired or derecognised under New Zealand generally accepted accounting practice.
- (b) Deferred tax assets. The deduction for deferred tax assets may be net of deferred tax liabilities only if all of the criteria in (i)-(iii) of this subsection are met. Netting may only occur to the extent that deferred tax assets exceed deferred tax liabilities (i.e. any excess of deferred tax liabilities over assets cannot be added to Common Equity Tier 1 capital). The criteria are:
 - (i) the deferred tax assets and deferred tax liabilities arise as a result of deductible temporary differences as defined by NZ IAS 12 (deferred tax liabilities may not be netted against deferred tax assets arising from the carry forward of unused tax losses or tax credits);
 - (ii) the deferred tax assets or liabilities relate to taxes levied by the New Zealand Inland Revenue; and
 - (iii) the deferred tax assets and liabilities may be offset under NZ IAS 12.
- (c) The amount of the cash flow hedge reserve that relates to the hedging of items that are not recorded at fair value on the balance sheet (including projected cash flows).²
- (d) Credit enhancements provided to associated funds management and securitisation vehicles that are not subject to regulatory consolidation where the credit enhancement has not been expensed (see part 5 of this document for further details).
- (e) Credit enhancements provided to any member of an affiliated insurance group where the credit enhancement has not been expensed (see part 6 of this document for further details).

² Any gains on hedges are to be deducted and any losses on hedges added back.

- (f) The full amount of funding provided to an affiliated insurance group in any case where the minimum separation requirements of part 6, sections 6.3-6.8, of this document are not met.
 - (g) The full amount of aggregate funding provided to all affiliated insurance groups and associated funds management and securitisation vehicles that are not subject to regulatory consolidation, in cases where the aggregate funding exceeds the 10% of Common Equity Tier 1 capital limit allowable under parts 5 and 6, sections 5.9 and 6.3(g), of this document.
 - (h) Advances of a capital nature provided to connected persons, as determined in accordance with the Reserve Bank's Connected Exposures Policy (BS8).³
 - (i) Unrealised gains and losses that have resulted from changes in the fair value of liabilities due to the changes in the creditworthiness of a member of the banking group (or the registered bank, for the solo capital calculation).
 - (j) Any fair value gains and losses relating to financial instruments for which a fair value cannot reliably be calculated, except that a fair value loss that has arisen from credit impairment on a loan and that has been recognised in retained earnings must in all cases be reflected in Common Equity Tier 1 capital.
 - (k) Any defined benefit superannuation fund asset on the balance sheet. The asset should be deducted net of any associated deferred tax liability that would be extinguished if the asset should become impaired or derecognised under New Zealand generally accepted accounting practice.
 - (l) Holdings of the registered bank's own ordinary shares, whether held directly or indirectly, unless eliminated through the application of New Zealand generally accepted accounting practice. This includes any own ordinary shares that the registered bank (or a member of the banking group) could be contractually obliged to purchase, regardless of whether the holdings are recorded in the banking or trading book.
 - (m) Unrealised revaluation losses on securities holdings where the book value of the securities exceeds the market value but the resulting unrealised loss has not been incorporated into the accounts. In such cases, the full value of the difference should be deducted from capital.
 - (n) Any deductions required as a result of the total expected loss being higher than total eligible allowances for impairment as set out in part 4, section 4.215 below.
- 2.10 Any defined benefit superannuation fund liability on the balance sheet must be fully recognised in the calculation of Common Equity Tier 1 capital (i.e. Common Equity Tier 1 capital cannot be increased through derecognising these liabilities).
- 2.11 Assets deducted from Common Equity Tier 1 capital should not be included in risk-weighted assets.

³ An advance is considered to be of a capital nature if it is described as capital or subordinated debt in the financial statements of the connected person and/or is counted as capital under the capital adequacy requirements of a home supervisor.

Additional Tier 1 capital

2.12 Additional Tier 1 capital comprises high-quality capital and must:

- (a) provide a permanent and unrestricted commitment of funds;
- (b) be freely available to absorb losses; and
- (c) provide for fully discretionary capital distributions.

2.13 Additional Tier 1 capital is defined as the sum of subsections 2.13(a)-2.13(c), less subsection 2.13(d) as set out below:

- (a) Instruments issued by the registered bank (or an SPV of the registered bank) that:
 - (i) are not included in Common Equity Tier 1 capital;
 - (ii) meet the criteria for Additional Tier 1 capital instruments set out in subpart 2B;
 - (iii) if classified as liabilities under New Zealand generally accepted accounting practice, meet the loss absorbency requirements for Additional Tier 1 capital instruments set out in subpart 2E;
 - (iv) meet the loss absorbency at non-viability criteria set out in subpart 2F; and
 - (v) where the instrument is issued by an SPV, the criteria in subpart 2G are met.
- (b) Share premium resulting from the issue of instruments included in Additional Tier 1 capital.
- (c) Interests arising from instruments issued by a fully consolidated subsidiary of the registered bank and held by third parties (calculated in accordance with subpart 2D) that meet the eligibility criteria in section 2.33 (not applicable for calculating the registered bank's solo capital ratio).
- (d) Regulatory adjustments applied to Additional Tier 1 capital according to the corresponding deductions approach as required under sections 2.18-2.21 of this part.

2.14 Except in the event of a loss absorption trigger event (subpart 2E) or a non-viability trigger event (subpart 2F), an Additional Tier 1 capital instrument may only be repaid with the approval of the Reserve Bank in accordance with subpart 2H.

Tier 2 capital

2.15 Tier 2 capital is capital that has some of the attributes of Tier 1 capital, but that is restricted in its ability to absorb losses other than in a winding up.

2.16 Tier 2 capital is defined as the sum of subsections 2.16(a)–2.16(e), less subsection 2.16(f) as set out below:

- (a) Instruments issued by the registered bank (or an SPV of the registered bank) that:
 - (i) are not included in Tier 1 capital;

- (ii) meet the criteria for inclusion in Tier 2 capital in subpart 2C;
 - (iii) meet the requirements for loss absorbency at the point of non-viability in subpart 2F; and
 - (iv) where the instrument is issued by an SPV, the criteria in subpart 2G are met.
- (b) Share premium resulting from the issue of instruments included in Tier 2 capital.
 - (c) Instruments issued by a fully consolidated subsidiary of the registered bank and held by third parties (calculated in accordance with subpart 2D) that meet the eligibility criteria in section 2.38 (not applicable for calculating the registered bank's solo capital ratio).
 - (d) Revaluation reserves:
 - (i) reserves arising from a revaluation of tangible fixed assets including owner-occupied property, and cumulative fair value gains on investment property, which have been subject to audit or review by the registered bank's auditor. Cumulative losses below depreciated cost value on any individual property must not be netted against revaluation gains on other property. Such losses impact on Common Equity Tier 1 capital via the accounting treatment, and no regulatory adjustment should be made to that impact;
 - (ii) foreign currency translation reserves; and
 - (iii) reserves arising from a revaluation of security holdings. Where such reserves have not been incorporated into the accounts, they should be included at a discount of 55% (i.e. at 45% of the value of the reserves).
 - (e) For non-defaulted exposures, where the total expected loss amount is lower than total eligible allowances for impairment, the difference may be included in Tier 2 capital up to a maximum of 0.6% of risk-weighted credit exposures (see also paragraph 4.216 of part 4 of this document).
 - (f) Regulatory adjustments applied to Tier 2 capital according to the corresponding deductions approach as required under sections 2.18-2.21 of this part.
- 2.17 Except in the event of a non-viability trigger event (subpart 2F) or upon maturity, a Tier 2 capital instrument may only be repaid with the approval of the Reserve Bank, in accordance with subpart 2H.

Deductions from total capital according to the corresponding deductions approach

- 2.18 The items in section 2.20 must be deducted from total capital according to the corresponding deductions approach. The corresponding deductions approach means that the deduction must be made from the category of capital (i.e. Common Equity Tier 1, Additional Tier 1 or Tier 2) for which the item would qualify if it was issued by a member of the banking group itself. Despite this, if the banking group does not have sufficient of a particular category of capital to apply a deduction to that category, the shortfall must be deducted from a higher category of capital (e.g. if the banking

group does not have enough Additional Tier 1 capital, the deduction must be applied to Common Equity Tier 1 capital).

- 2.19 A corresponding deduction need only be applied for a particular item to the extent that a deduction has not already been made from Common Equity Tier 1 capital in accordance with section 2.9.
- 2.20 The following items are to be deducted according to this approach:
- (a) Reciprocal cross holdings in the capital of a bank, non-bank deposit taker or insurance entity (or overseas equivalent), or in the equity of another entity that is a financial institution.
 - (b) Investments (whether direct or indirect or through an index) meeting the criteria in (i)-(iii) of this subsection. The amount to be deducted is the amount by which the aggregate of those investments (excluding any investment already deducted from Common Equity Tier 1) exceeds 10% of the banking group's (or registered bank's, for solo capital) Common Equity Tier 1 capital.⁴ Underwriting positions held for five working days or less can be excluded. The criteria are:
 - (i) the investments are in the regulatory capital of a bank, non-bank deposit taker or insurance entity (or overseas equivalent) or are in the equity of another entity that is a financial institution;
 - (ii) the entities are outside the scope of regulatory consolidation; and
 - (iii) the banking group (or registered bank, for the solo capital calculation) does not own more than 10% of the issued ordinary share capital of any of the entities.
 - (c) Investments (whether direct, indirect or through an index) meeting the criteria in (i)-(iii) of this subsection. The amount to be deducted is the full amount of the investment. Underwriting positions held for five working days or less can be excluded. The criteria are:
 - (i) the investment is in the regulatory capital of a bank, non-bank deposit taker or insurance entity (or overseas equivalent) or in the equity of another entity that is a financial institution;
 - (ii) the entity is outside the scope of regulatory consolidation; and
 - (iii) the banking group (or registered bank, for solo capital) owns 10% or more of the issued ordinary share capital of the entity in which the investment is made or the entity is a related party of any member of the banking group (or registered bank, for solo capital).
 - (d) In the case of the banking group: investments in the ordinary share capital of unconsolidated subsidiaries of the registered bank.
 - (e) In the case of the registered bank: investments in the ordinary share capital of subsidiaries of the registered bank other than those that are both wholly owned and funded exclusively by the registered bank. (See section 1.8 in part 1 for definitions of "wholly owned" and "funded exclusively").

⁴ Common Equity Tier 1 capital is calculated after applying all the regulatory adjustments to Common Equity Tier 1 capital set out in section 2.9.

- 2.21 For the purposes of section 2.20, if the capital instrument of the entity in which the investment is made does not meet the criteria for Common Equity Tier 1 capital, Additional Tier 1 capital, or Tier 2 capital, the capital is to be considered ordinary shares for the purposes of this regulatory adjustment.
- 2.22 Assets deducted according to the corresponding deductions approach should not be included in risk-weighted assets.

Subpart 2A – Criteria for classification as ordinary shares

2.23 Ordinary shares included in Common Equity Tier 1 capital must satisfy the following criteria:

- (a) Only the paid-up amount of the instrument, irrevocably received by the registered bank, is included as Common Equity Tier 1 capital.
- (b) Holders of the instrument have full voting rights arising from the ownership of the shares.
- (c) The instrument represents the most subordinated claim in the liquidation of the registered bank.
- (d) The instrument holder is entitled to a claim on the residual assets of the registered bank that is proportional to its share of issued capital, after all senior claims have been repaid in liquidation (i.e. has an unlimited and variable claim, not a fixed or capped claim).
- (e) The principal amount of the instrument is perpetual (i.e. it has no maturity date) and is never repaid outside of liquidation (i.e. the shares are not redeemable as defined in section 68 of the Companies Act 1993), setting aside discretionary acquisitions permitted by section 58 of the Companies Act 1993.
- (f) No member of the banking group does anything to create an expectation at issuance that the instrument will be repaid or cancelled, nor do the contractual terms of the instrument provide any feature that may give rise to such an expectation.
- (g) Distributions on the instrument must be paid out of distributable items (retained earnings included). The level of distributions is not in any way linked to the amount paid at issuance and is not subject to a contractual cap (except to the extent that a registered bank is unable to pay distributions that exceed the level of distributable items). Distributions will be restricted by the registered bank's conditions of registration if the buffer ratio (as defined in part 3) of the banking group is 2.5% or less.
- (h) Distributions must meet the following requirements:
 - (i) there are no circumstances under which the distributions are obligatory and in all circumstances the registered bank is able to waive any distribution;
 - (ii) any waived distributions are non-cumulative (i.e. they are not required to be made up by the registered bank at a later date); and
 - (iii) non-payment of distributions must not be an event of default of the registered bank or any other member of the banking group.
- (i) Distributions are paid by the registered bank only after all legal and contractual obligations have been met and payments on more senior capital instruments have been made. This means that ordinary shares must not have any preferential or predetermined right to distributions of capital or income.

- (j) After retained earnings and other reserves, the instrument takes the first and proportionately greatest share of any losses as they occur.⁵ Ordinary shares absorb losses on a going-concern basis proportionately and *pari passu* with each other.
- (k) The instrument is classified as equity under New Zealand generally accepted accounting practice.
- (l) The instrument is issued by the registered bank (i.e. not out of an SPV), and neither the registered bank nor a related party over which the registered bank exercises control or significant influence can have purchased the instrument, nor directly or indirectly have funded the purchase of the instrument. Nothing in this provision shall prevent a parent entity of the registered bank from purchasing the instrument nor prevent the registered bank undertaking full recourse lending to a borrower to fund the purchase of a well-diversified portfolio that may include the capital instrument.
- (m) The paid-up amount of the instrument, or any future payments related to the instrument, is neither secured nor covered by a guarantee of any member of the banking group or a related entity, or subject to any other arrangement that legally or economically enhances the seniority of the claim.

⁵ In cases where other instruments have a write-off or conversion feature, this criterion is still deemed to be met by ordinary shares.

Subpart 2B – Criteria for classification as Additional Tier 1 capital

- 2.24 To qualify as Additional Tier 1 capital, an instrument must satisfy the following criteria:
- (a) Only the paid-up amount of the instrument, irrevocably received by the registered bank, is included in Additional Tier 1 capital.
 - (b) The instrument represents, prior to any conversion or write-off (refer subpart 2E and subpart 2F), the most subordinated claim in the liquidation of the registered bank after Common Equity Tier 1 capital.
 - (c) The paid-up amount of the instrument, or any future payments related to the instrument, is neither secured nor covered by a guarantee of any member of the banking group or a related entity, or subject to any other arrangement that legally or economically enhances the seniority of the holder's claim *vis-a-vis* bank creditors. The instrument may not be subject to netting or offset claims on behalf of the holder of the instrument.
 - (d) The principal amount of the instrument is perpetual (i.e. there is no maturity date). However, the instrument may be callable or redeemable at the initiative of the registered bank after a minimum of five years⁶ from the date on which the registered bank irrevocably receives the proceeds of payment for the instrument. Despite anything in this subpart, an instrument may:
 - (i) provide for the registered bank to have a right to call or redeem the instrument within the first five years of issuance as a result of a tax or regulatory event. The Reserve Bank will not permit such a call or redemption if it forms the view that the registered bank was in a position to anticipate the tax or regulatory event when the instrument was issued, or if it forms the view that the tax or regulatory event is minor or not applicable; and
 - (ii) be repayable at no value to give effect to a write-off as a result of a loss absorption trigger event (subpart 2E) or a non-viability trigger event (subpart 2F).
 - (e) Under the terms of contract of the instrument, the registered bank must:
 - (i) be required to receive the prior written approval of the Reserve Bank to make any repayment of principal; and
 - (ii) not provide any feature that might give rise to an expectation that the instrument will be repaid.
 - (f) The instrument contains no step-ups or incentives to redeem. This requires that the terms of the instrument must provide for the interest or dividend rate to

⁶ Multiple call or redemption dates may be included after five years.

be fixed for the entire term of the instrument and must not provide for the rate to be altered or reviewed, except for the following:

- (i) where the interest payment or dividend is cancelled, in whole or part; and
- (ii) where there is a variable rate and where the formula for setting the rate is fixed (for the term of the debt) at the outset. For example, it would be acceptable to specify the interest rate as a fixed margin above a recognised market benchmark such as the bank bill rate.

Conversion from a fixed rate to a floating rate (or vice versa) in combination with a call option without any increase in credit spread will not in itself be viewed as an incentive to redeem. However, members of the banking group must not do anything that creates an expectation that the call will be exercised. A change in the margin will be considered to be an incentive to redeem.⁷

(g) Distributions must meet the following requirements:

- (i) the registered bank has full discretion at all times to cancel distributions on the instrument. Any waived distributions are non-cumulative (i.e. waived distributions cannot be required to be made up at a later date and bonus payments to compensate for unpaid distributions are prohibited);
- (ii) cancellation of distributions must not be an event of default of the registered bank or any member of the banking group. Holders of the instruments must have no right to apply for the liquidation or voluntary administration of any member of the banking group or appoint a receiver of the property of any member of the banking group on the grounds that the registered bank fails to make, or may become unable to make, a distribution on the instrument;
- (iii) cancellation of distributions must not impose restrictions on the registered bank, or any other member of the banking group, except in relation to:
 - (A) the acquisition, repurchase or redemption of capital instruments; or
 - (B) dividend stopper arrangements that stop distributions on ordinary shares or other Additional Tier 1 capital instruments; and
- (iv) the registered bank must have full access to cancelled distributions to meet obligations as they fall due.

(h) Distributions on the instrument must be paid out of distributable items.

(i) The instrument cannot have a credit-sensitive distribution feature, such as a distribution that is reset periodically based in whole or in part on the credit standing of any member of the banking group.⁸

(j) Neither the registered bank nor a related party over which the registered bank exercises control or significant influence can have purchased the instrument,

⁷ Conversion from a fixed rate to a floating rate that is calculated as a benchmark rate plus a margin will be considered an incentive to redeem if there is an increase in the margin relative to that implied for the fixed rate.

⁸ An instrument may utilise a broad index as a reference rate for distribution or payments calculation purposes, provided that the index does not exhibit any significant correlation with the issuer's credit standing.

nor directly or indirectly have funded the purchase of the instrument. Nothing in this provision shall prevent a parent entity of the registered bank from purchasing the instrument nor prevent the registered bank undertaking full recourse lending to a borrower to fund the purchase of a well-diversified portfolio that may include the capital instrument.

- (k) The instrument cannot have any features that hinder recapitalisation of the registered bank or any member of the banking group.

Subpart 2C – Criteria for classification as Tier 2 capital

2.25 To qualify as Tier 2 capital, an instrument must satisfy the following criteria:

- (a) Only the paid-up amount of the instrument, irrevocably received by the registered bank, is included in Tier 2 capital.
- (b) The instrument is subordinated to depositors and general creditors of the registered bank.
- (c) The paid-up amount of the instrument, or any future payments related to the instrument, is neither secured nor covered by a guarantee of any member of the banking group or a related entity, or subject to any other arrangement that legally or economically enhances the seniority of the claim *vis-a-vis* depositors and general bank creditors. The instrument may not be subject to netting or offset of claims on behalf of the holder of the instrument.
- (d) The instrument has a minimum original maturity of at least five years.
- (e) The amount of the instrument that may be recognised during the final four years to maturity is to be amortised on a straight-line basis at a rate of 20% per annum as follows:

Years to maturity	Amount recognised
More than 4	100%
Less than and including 4 but more than 3	80%
Less than and including 3 but more than 2	60%
Less than and including 2 but more than 1	40%
Less than and including 1	20%

- (f) The instrument may only be callable or redeemable prior to maturity at the initiative of the registered bank and only after a minimum of five years⁹ from the date on which the registered bank irrevocably receives the proceeds of payment for the instrument. Despite anything in this subpart, an instrument may:
 - (i) provide for the registered bank to have a right to call or redeem the instrument within the first five years of issuance as a result of a tax or regulatory event. The Reserve Bank will not permit such a call or redemption if it forms the view that the registered bank was in a position to anticipate the tax or regulatory event when the instrument was issued, or if it forms the view that the tax or regulatory event is minor or not applicable; and
 - (ii) be repayable prior to maturity at no value to give effect to a write-off as a result of a non-viability trigger event (see subpart 2F).

⁹ Multiple call or redemption dates may be included after five years.

- (g) Under the terms of the instrument, the registered bank must:
 - (i) be required to receive the prior written approval of the Reserve Bank to make any repayment of principal prior to maturity; and
 - (ii) not include any feature that might give rise to an expectation that the instrument will be repaid prior to maturity.
- (h) The instrument contains no step-ups or incentives to redeem. This requires that the terms of the instrument must provide for the interest or dividend rate to be fixed for the entire term of the instrument and must not provide for the rate to be altered or reviewed, except for the following:
 - (i) where the interest payment or dividend is cancelled, in whole or part; and
 - (ii) where there is a variable rate and where the formula for setting the rate is fixed (for the term of the debt) at the outset. For example, it would be acceptable to specify the interest rate as a fixed margin above a recognised market benchmark such as the bank bill rate.

Conversion from a fixed rate to a floating rate (or vice versa) in combination with a call option without any increase in credit spread will not in itself be viewed as an incentive to redeem. However, members of the banking group must not do anything that creates an expectation that the call will be exercised. A change in the margin will be considered to be an incentive to redeem.¹⁰

- (i) The holder of the instrument must have no rights to accelerate the repayment of future scheduled payments (coupon or principal), except in liquidation.
- (j) The instrument cannot have a credit-sensitive distribution feature, such as a distribution that is reset periodically based in whole or in part on the credit standing of any member of the banking group.¹¹
- (k) Neither the registered bank nor a related party over which the registered bank exercises control or significant influence can have purchased the instrument, nor directly or indirectly have funded the purchase of the instrument. Nothing in this provision shall prevent a parent entity of the registered bank from purchasing the instrument nor prevent the registered bank undertaking full recourse lending to a borrower to fund the purchase of a well-diversified portfolio that may include the capital instrument.
- (l) The agreement should be subject to New Zealand law or a satisfactory equivalent. Where a registered bank wishes to use other than New Zealand law, it will need to satisfy the Reserve Bank that the subordination provisions of the agreement will be effective under that jurisdiction. The Reserve Bank will generally consider Australian law to be a satisfactory equivalent.

¹⁰ Conversion from a fixed rate to a floating rate that is calculated as a benchmark rate plus a margin will be considered an incentive to redeem if there is an increase in the margin relative to that implied for the fixed rate.

¹¹ An instrument may utilise a broad index as a reference rate for distribution or payments calculation purposes, provided that the index does not exhibit any significant correlation with the issuer's credit standing.

Subpart 2D – Recognition of minority interests and other capital issued out of fully consolidated subsidiaries that is held by third parties

- 2.26 Common Equity Tier 1, Additional Tier 1 and Tier 2 capital instruments, and interests arising from those instruments, issued to third parties out of a subsidiary that is fully consolidated for the purposes of calculating the banking group’s capital ratios may be recognised as capital of the banking group subject to the requirements set out in this subpart. This subpart is not applicable to the calculation of a registered bank’s solo capital ratio.
- 2.27 The amount of capital of a fully consolidated subsidiary held by third parties that is eligible for inclusion in the capital of the banking group is determined on the basis of the relevant eligibility criteria (below) and a calculation to determine what portion of eligible capital can be recognised. This involves certain calculations regarding the capital position of the fully consolidated subsidiary.
- 2.28 If the fully consolidated subsidiary is not subject to the Reserve Bank’s capital adequacy requirements for registered banks, for the purposes of the calculations in this subpart, calculations relating to the subsidiary’s minimum capital requirements, conservation buffer and risk-weighted assets need to be undertaken as if the subsidiary was a bank. A bank may elect to give no recognition in the consolidated capital of the banking group to the capital issued by the subsidiary to third parties. However, all the exposures of the fully consolidated subsidiary must be included when calculating the total risk-weighted assets of the banking group.

Common Equity Tier 1 capital (minority interests)

Eligibility criteria

- 2.29 Minority interests arising from the issue of ordinary shares to third party investors by a fully consolidated subsidiary, and associated retained earnings/reserves attributable to the third party investors, are eligible to receive recognition in the Common Equity Tier 1 capital of the consolidated banking group only if:
- (a) the subsidiary is itself a bank registered by the Reserve Bank of New Zealand;¹² and
 - (b) the instrument, retained earnings or reserves attributable to the third party investors would meet the criteria for Common Equity Tier 1 capital set out in either subsection 2.8(a),(c) or (d), had the issuer been the registered bank.

¹² Common shares issued to third party investors by a consolidated subsidiary that is not a bank cannot be included in the consolidated Common Equity Tier 1 capital of the parent. However, these amounts may be included in the consolidated banking group’s Tier 1 capital and total capital, subject to the conditions in sections 2.33 and 2.38 of this subpart.

Portion recognised

- 2.30 The amount of capital that can be recognised as Common Equity Tier 1 capital of the banking group is the total amount of capital attributable to third parties that meets the eligibility criteria in section 2.29, net of deductions attributable to the third parties calculated in accordance with section 2.9,¹³ minus the amount of **surplus Common Equity Tier 1 capital of the subsidiary that is attributable to the minority shareholders**.
- 2.31 For the purposes of section 2.30, the **surplus Common Equity Tier 1 capital of the subsidiary that is attributable to the minority shareholders** is calculated by multiplying the **surplus Common Equity Tier 1 capital of the subsidiary** by the percentage of the Common Equity Tier 1 capital of the subsidiary attributable to the minority shareholders.
- 2.32 For the purposes of section 2.31, the **surplus Common Equity Tier 1 capital of the subsidiary** is the Common Equity Tier 1 capital of the subsidiary, net of deductions calculated in accordance with section 2.9, minus the lower of: (1) 7.0% of the subsidiary's risk-weighted assets; and (2) 7.0% of the consolidated risk-weighted assets that relate to the subsidiary.

Additional Tier 1 capital*Eligibility criteria*

- 2.33 An instrument issued out of a fully consolidated subsidiary and held by a third party, and associated retained earnings/reserves attributable to those third party investors, are eligible to receive recognition in the Additional Tier 1 capital of the consolidated banking group only if the instrument, retained earnings or reserves would, had the issuer been the registered bank, meet:
- (a) the criteria for Common Equity Tier 1 capital set out in either subsection 2.8(a),(c) or (d); or
 - (b) the criteria for Additional Tier 1 capital instruments set out in subsection 2.13(a).

Portion recognised

- 2.34 The amount of capital that can be recognised as Additional Tier 1 capital of the consolidated banking group is the total amount of capital attributable to third parties that meets the criteria in section 2.33, net of deductions from Tier 1 capital attributable to third parties calculated in accordance with sections 2.9 and 2.18-2.21, minus the amount of **surplus Tier 1 capital of the subsidiary that is attributable to the third party investors**.
- 2.35 For the purposes of section 2.34, the **surplus Tier 1 capital of the subsidiary that is attributable to the third party investors** is calculated by multiplying the **surplus Tier 1 capital of the subsidiary** by the percentage of Tier 1 capital issued by the subsidiary that is attributable to third party investors or minority shareholders.

¹³ For the purposes of this subpart, deductions attributable to third party investors in the subsidiary relate to items on the subsidiary's balance sheet.

- 2.36 For the purposes of section 2.35, the **surplus Tier 1 capital of the subsidiary** is the Tier 1 capital of the subsidiary, net of deductions calculated in accordance with sections 2.9 and 2.18-2.21, minus the lower of: (1) 8.5% of the subsidiary's risk-weighted assets; and (2) 8.5% of the consolidated risk-weighted assets that relate to the subsidiary.
- 2.37 The portion recognised must exclude amounts recognised as Common Equity Tier 1 capital under section 2.30.

Tier 2 capital

Eligibility criteria

- 2.38 An instrument issued out of a fully consolidated subsidiary and held by a third party is eligible to receive recognition in the Tier 2 capital of the consolidated banking group if the instrument would, had the issuer been the registered bank, meet:
- (a) the criteria for ordinary shares set out in subsection 2.8(a); or
 - (b) the criteria for Additional Tier 1 capital instruments set out in subsection 2.13(a); or
 - (c) the criteria for Tier 2 instruments set out in subsection 2.16(a).

Portion recognised

- 2.39 The amount of capital that can be recognised as Tier 2 capital of the consolidated banking group is the total amount of capital attributable to third parties that meets the criteria in section 2.38, net of deductions attributable to the third parties calculated in accordance with sections 2.9 and 2.18-2.21, minus the amount of the **surplus total capital of the subsidiary that is attributable to the third party investors**.
- 2.40 For the purposes of section 2.39, the **surplus total capital of the subsidiary that is attributable to the third party investors** is calculated by multiplying the **surplus total capital of the subsidiary** by the percentage of total capital issued by the subsidiary that is attributable to third party investors or minority shareholders.
- 2.41 For the purposes of section 2.40, the **surplus total capital of the subsidiary** is the total capital of the subsidiary, net of deductions calculated in accordance with sections 2.9 and 2.18-2.21, minus the lower of: (1) 10.5% of the subsidiary's risk-weighted assets; and (2) 10.5% of the consolidated risk-weighted assets that relate to the subsidiary.
- 2.42 The portion recognised must exclude amounts recognised as Common Equity Tier 1 capital under section 2.30 and amounts recognised as Additional Tier 1 capital under section 2.34.

Subpart 2E – Loss absorbency requirements for Additional Tier 1 capital instruments

Loss absorbency requirements for Additional Tier 1 capital instruments

2.43 Subject to section 2.44, an Additional Tier 1 capital instrument classified as a liability under New Zealand generally accepted accounting practice must include, as a term of the instrument that, to the extent necessary to meet the requirements of section 2.45:

- (a) the instrument will irrevocably convert, in part or full, into the ordinary shares of the registered bank;¹⁴ or
- (b) the instrument will be irrevocably written off, in part or full, in a manner that meets the requirements of section 2.50;¹⁵ or
- (c) the holder's (Holder A) interest in the instrument will convert, in part or full, into the ordinary shares of a parent entity (Issuer A) of the registered bank in the manner specified in 2.46,

when the banking group's Common Equity Tier 1 capital ratio falls below 5.125% of total risk-weighted assets (**the loss absorption trigger event**).

2.44 Where the instrument provides a conversion mechanism under either subsection 2.43(a) or 2.43(c), the terms of the instrument must provide that where, following the occurrence of a loss absorption trigger event, the requirements of subsection 2.43(a) or 2.46(a)(ii) are not able to be met such that the transaction:

- (a) is not capable of being immediately undertaken; or
- (b) is not revocable; or
- (c) will not result in an immediate increase in the Common Equity Tier 1 capital of the banking group,

the instrument will be immediately written off, in part or full, to the extent necessary to meet the requirements of section 2.45.

For the purposes of this section, a transaction is not capable of being immediately undertaken if the registered bank is unable, within five working days of the loss absorption trigger event, to obtain a legal opinion satisfactory to the Reserve Bank stating that there are no legal obstacles to meeting the requirements of subsection 2.43(a) or 2.46(a)(ii), as relevant. If, subsequent to having obtained such a legal opinion, it is determined that the requirements of subsection 2.43(a) or 2.46(a)(ii), as relevant, are not in fact capable of being met, the instrument must be immediately written off, in part or full, to the extent necessary to meet the requirements of section

¹⁴ If, as the result of a conversion under this subpart, a person gains a significant influence over the registered bank such that the person would be required under section 77A of the Act to obtain the written consent of the Reserve Bank to the transaction, the Reserve Bank will not pursue any prosecution against that person in the event that the person does not obtain the prior written consent of the Reserve Bank.

¹⁵ Notwithstanding anything else in this document, a capital instrument may be able to be acquired or redeemed by the registered bank for the purpose of giving effect to a write-off.

- 2.45. Despite any delay, the effective date for the write-off or conversion, for the purposes of these standards, is to be the date of the loss absorption trigger event.
- 2.45 For the purposes of section 2.43, the amount to be converted or written off is the amount that is sufficient to return the Common Equity Tier 1 capital ratio of the banking group to at least 5.125% of total risk-weighted assets, if possible. The write-off or conversion must be able to be applied to both the principal and any accrued interest or dividends declared that are unpaid at the time of the loss absorption trigger event.¹⁶
- 2.46 The following requirements apply in the case of conversion of the holder's (Holder A) interest in the instrument into shares in a parent entity (Issuer A) under subsection 2.43(c):
- (a) the terms of the instrument must provide, in relation to the portion of the instrument to be converted, that on the occurrence of a loss absorption trigger event:
 - (i) the parent entity (Issuer A) issues, to the extent it is permitted by law, ordinary shares to the instrument holder (Holder A); and
 - (ii) the registered bank irrevocably ceases to have any obligation to repay the principal or make distributions or payments under the instrument, except to the extent that a parent entity of the registered bank (whether Issuer A or not), being a New Zealand company, may receive ordinary shares in the registered bank; and
 - (b) the transaction in subsection 2.46(a)(ii) must in no way be contingent upon Issuer A issuing the shares to Holder A in accordance with subsection 2.46(a)(i), nor may any person have a right of redress against the registered bank as a result of Issuer A failing to provide shares.
- 2.47 In determining the value of an instrument for the purposes of regulatory capital recognition, the face value of an instrument must be reduced by any potential tax or other offsets that may reduce the amount of Common Equity Tier 1 capital generated for the registered bank as the result of conversion or write-off.¹⁷ Adjustments must be updated over time to reflect the best estimate of the potential tax and offset value. The Reserve Bank may require a tax opinion or binding ruling on potential tax liabilities.¹⁸ Potential tax liabilities should be based on the contractually intended mechanism, rather than the potential write-off required by section 2.44.
- 2.48 The issue documentation may provide for a priority under which capital instruments are to be converted or written off. The terms attached to such an ordering must not impede the ability of the capital instrument to be converted or written off in a timely manner.
- 2.49 Where an Additional Tier 1 capital instrument provides a conversion mechanism (under subsection 2.43(a) or (c)), the registered bank must, to the extent that it is able:

¹⁶ The terms of the instrument may provide an ordering in which the principal, interest or dividends are written off or converted.

¹⁷ That is, the amount of the instrument recognised will be the minimum level of Common Equity Tier 1 that would be generated for the registered bank by conversion or write-off.

¹⁸ An opinion or ruling would only be required where the offset calculated by the bank is less than the company tax rate multiplied by the face value of the instrument.

- (a) ensure that, when the instrument is issued, there are no legal or other impediments to issuing the relevant shares and all necessary authorisations have been obtained to effect conversion;
 - (b) ensure that, on a continuing basis, all necessary authorisations for the required conversions are maintained; and
 - (c) provide the Reserve Bank with such evidence that the requirements of this section are met as the Reserve Bank requests.
- 2.50 Where an Additional Tier 1 capital instrument provides a write-off mechanism, this mechanism must be structured so that:
- (a) no person has any claim against the registered bank, including in the event of liquidation of the registered bank, in regard to any portion of the instrument that has been written off; and
 - (b) no further distribution/payments are payable on the instrument in regards to the written off portion of the instrument.
- 2.51 The terms of the instrument may provide for other events that result in its conversion to ordinary shares in the registered bank or a parent entity, such as a conversion to meet requirements of a regulator of a parent entity.
- 2.52 A registered bank must notify the Reserve Bank immediately, in writing, if the banking group's Common Equity Tier 1 capital falls below 5.125% of total risk-weighted assets.

Application of subpart 2E to instruments issued by fully consolidated operating subsidiaries

- 2.53 Where an Additional Tier 1 capital instrument to which this subpart applies has been included in the Additional Tier 1 capital of the banking group and that instrument has been issued by a fully consolidated subsidiary in accordance with subpart 2D, the requirements of this subpart must be met in relation to that instrument. For the avoidance of doubt, section 2.43 applies in the following manner:

The capital instrument must include, as a term of the instrument that, to the extent necessary to meet the requirements of section 2.45:

- (a) the instrument will irrevocably convert, in part or full, into the ordinary shares of the subsidiary or the registered bank; or
- (b) the instrument will be irrevocably written off, in part or full, in a manner that meets the requirements of section 2.50; or
- (c) the holder's (Holder A) interest in the instrument will irrevocably convert, in part or full, into the ordinary shares of a parent entity of the registered bank in the manner specified in section 2.46,

when the banking group's Common Equity Tier 1 capital ratio falls below 5.125% of total risk-weighted assets (**the loss absorption trigger event**).

- 2.54 If section 2.46 applies to an instrument issued by a subsidiary of the registered bank, references to a parent entity should be read as references to a parent entity of the registered bank. Subsection 2.46(a)(ii) applies such that both the registered bank and subsidiary must irrevocably cease to have any obligation to repay the principal or make distributions or payments under the instrument, except to the extent that a parent entity of the registered bank, being a New Zealand company, may receive ordinary shares in the registered bank or subsidiary.

For the purposes of section 2.47, the value of the capital instrument issued by the subsidiary must be reduced by any potential tax or other offsets that may reduce the amount of Common Equity Tier 1 capital generated for the subsidiary as the result of conversion or write-off.

In the event of write-off, subsection 2.50(a) applies such that no person may have any claim against either the registered bank or the subsidiary, including in the event of liquidation of the registered bank or subsidiary, in regard to any portion of the instrument written off.

For the purposes of section 2.52, the obligation to notify the Reserve Bank is with the registered bank.

When applying this subpart to instruments issued by a subsidiary, all other references to a registered bank in this subpart must be read as a reference to the subsidiary.

Application of subpart 2E to special purpose vehicles

- 2.55 Where an instrument has been included in the Additional Tier 1 capital of the banking group and that instrument has been issued to a third party by an SPV in accordance with subpart 2G, the requirements of this subpart must be met in relation to that instrument. For the avoidance of doubt, section 2.43 applies in the following manner:

The instrument issued by the SPV to the third party and the instrument issued by the registered bank to the SPV must include, as a term of the instrument that, to the extent necessary to meet the requirements of section 2.45:

- (a) the instrument will irrevocably convert, in part or full, into the ordinary shares of the registered bank; or
- (b) the instrument will be irrevocably written off, in part or full, in a manner that meets the requirements of section 2.50; or
- (c) the holder's (Holder A) interest in the instrument will irrevocably convert, in part or full, into the ordinary shares of a parent entity of the registered bank in the manner specified in section 2.46

when the banking group's Common Equity Tier 1 capital ratio falls below 5.125% of total risk-weighted assets (**the loss absorption trigger event**).

Despite anything to the contrary in this part, where an instrument issued by an SPV provides a conversion feature (under either subsection 2.43(a) or (c)), the matching instrument issued by the registered bank to the SPV may provide a write-off feature.

If section 2.46 applies to an instrument issued by an SPV, any reference to a parent entity should be read as a reference to a parent entity of the registered bank. Subsection 2.46(a)(ii) applies such that both the registered bank and SPV must irrevocably cease to have any obligation to repay the principal or make distributions or payments under the instrument, except to the extent that a parent entity of the registered bank (whether Issuer A or not), being a New Zealand company, may receive ordinary shares in the registered bank.

For the purposes of section 2.47, the value of the capital instrument must be reduced by any potential tax or other offsets that may reduce the amount of Common Equity Tier 1 capital generated for the registered bank as the result of conversion or write-off of the instrument issued by the SPV to third parties or the instrument issued by the registered bank to the SPV.

In the event of write-off, section 2.50(a) applies such that no person may have any claim against either the registered bank or the SPV, including in the event of liquidation of the registered bank or SPV, in regard to any portion of the instrument that has been written off.

When applying this subpart to an instrument issued by an SPV, all other references in this subpart should be read as a reference to the registered bank.

Subpart 2F – Loss absorbency at the point of non-viability criteria

Loss absorbency at the point of non-viability criteria

- 2.56 Subject to section 2.57, an Additional Tier 1 or Tier 2 capital instrument must include, as a term of the instrument, a right held by the registered bank, exercisable upon the occurrence of a **non-viability trigger event** (as defined in section 2.61), to irrevocably:
- (a) convert the instrument, in part or full, into the ordinary shares of the registered bank;¹⁹ or
 - (b) write off the instrument, in part or full, in a manner that meets the requirements of section 2.65;²⁰ or
 - (c) convert the holder's (Holder A) interest in the instrument, in part or full, into the ordinary shares of a parent entity (Issuer A) of the registered bank in the manner specified in section 2.59.
- 2.57 Where the instrument provides a conversion mechanism under either subsection 2.56(a) or 2.56(c), the terms of the instrument must provide that where, following the occurrence of a non-viability trigger event, the requirements of subsection 2.56(a) or 2.59(a)(ii), as relevant, are not able to be met such that the transaction:
- (a) is not capable of being immediately undertaken; or
 - (b) is not revocable; or
 - (c) will not result in an immediate increase in the Common Equity Tier 1 capital of the banking group,

the registered bank will have the right to immediately write off, in part or full, the instrument.

For the purposes of this section, a transaction is not capable of being immediately undertaken if the registered bank is unable, within five working days of the non-viability trigger event, to obtain a legal opinion satisfactory to the Reserve Bank stating that there are no legal obstacles to meeting the requirements of subsection 2.56(a) or 2.59(a)(ii), as relevant. If, subsequent to having obtained such a legal opinion, it is determined that the requirements of subsection 2.56(a) or 2.59(a)(ii), as relevant, are not in fact capable of being met, the instrument must be able to be written off, in part or full, by the registered bank. Despite any delay, the effective date for the write-off or conversion, for the purposes of these standards, is to be the date of the non-viability trigger event.

¹⁹ If, as the result of a conversion under this subpart, a person gains a significant influence over the registered bank such that the person would be required under section 77A of the Act to obtain the written consent of the Reserve Bank to the transaction, the Reserve Bank will not pursue any prosecution against that person in the event that the person does not obtain the prior written consent of the Reserve Bank.

²⁰ Notwithstanding any other requirements in this document, a capital instrument may be able to be acquired or redeemed by the registered bank for the purpose of giving effect to a write-off.

- 2.58 For the purposes of sections 2.56 and 2.57, the amount to be converted or written off is the principal amount of the instrument and any accrued interest or declared dividends, unpaid at the time of the non-viability trigger event, that is sufficient to meet the direction of the Reserve Bank or decision of the statutory manager.²¹
- 2.59 The following requirements apply in the case of conversion of the holder's (Holder A) interest in the instrument into shares in a parent entity (Issuer A) under subsection 2.56(c):
- (a) the instrument must provide a right for the registered bank in relation to the portion of the instrument to be converted, exercisable upon the occurrence of a non-viability trigger event, the exercise of which causes:
 - (i) the parent entity (Issuer A) to issue, to the extent it is permitted by law, ordinary shares to the instrument holder (Holder A); and
 - (ii) the registered bank to irrevocably cease to have any obligation to repay the principal or make distributions or payments under the instrument, except to the extent that a parent entity of the registered bank (whether Issuer A or not), being a New Zealand company, may receive ordinary shares in the registered bank; and
 - (b) the transaction in subsection 2.59(a)(ii) must in no way be contingent upon Issuer A issuing the shares to Holder A in accordance with subsection 2.59(a)(i), nor may any person have a right of redress against the registered bank as a result of Issuer A failing to provide the shares.
- 2.60 In determining the value of an instrument for the purposes of regulatory capital recognition, the face value of an instrument must be reduced by any potential tax or other offsets that may reduce the amount of Common Equity Tier 1 capital generated for the registered bank as the result of conversion or write-off.²² Adjustments must be updated over time to reflect the best estimate of the potential tax and offset value. The Reserve Bank may require a tax opinion or binding ruling on potential tax liabilities.²³ Potential tax liabilities should be based on the contractually intended mechanism as per section 2.56 rather than the potential write-off required by section 2.57.
- 2.61 A non-viability trigger event is defined as:
- (a) a direction given, by notice in writing, to the registered bank by the Reserve Bank under section 113 of the Act, on the basis that the financial position of the registered bank is such that it meets any of the grounds in subsections 113(1)(a)-(e) of the Act, requiring the registered bank to exercise its right of either write-off or conversion under the instrument; or
 - (b) the registered bank being made subject to statutory management by an Order in Council issued pursuant to section 117 of the Act.

²¹ The terms of the instrument may provide an ordering in which the principal, interest or dividends are written off or converted.

²² That is, the amount of the instrument recognised will be the minimum level of Common Equity Tier 1 that would be generated for the registered bank by conversion or write-off.

²³ An opinion or ruling would only be required where the offset calculated by the bank is less than the company tax rate multiplied by the face value of the instrument.

- 2.62 The direction issued by the Reserve Bank or a decision of the statutory manager to exercise the right to convert or write off the instrument may either be for full conversion or write-off, or for partial conversion or write-off. Partial conversion or write-off will only be mandated if the Reserve Bank is satisfied that a partial conversion or write-off will ensure that the immediate risk that the banking group's capital will deteriorate below the minimum capital requirements is low.
- 2.63 The issue documentation may provide for a priority under which capital instruments are to be converted or written off. The terms attached to such an ordering must not impede the ability of the capital instrument to be converted or written off in a timely manner.
- 2.64 Where an instrument provides a conversion mechanism (under subsection 2.56(a) or (c)), the registered bank must, to the extent it is able:
- (a) ensure that, when the instrument is issued, there are no legal or other impediments to issuing the relevant shares and all necessary authorisations have been obtained to effect conversion;
 - (b) ensure that, on a continuing basis, all necessary authorisations for the required conversions are maintained; and
 - (c) provide the Reserve Bank with such evidence that the requirements of this section are met as the Reserve Bank requests.
- 2.65 Where an instrument provides a write-off mechanism, this mechanism must be structured so that:
- (a) no person has any claim against the registered bank, including in the event of liquidation of the registered bank, in regard to any portion of the instrument written off; and
 - (b) no further distributions/payments are payable on the instrument in regards to the written off portion of the instrument.
- 2.66 The terms of the instrument may provide that the regulator of a parent entity of the registered bank may trigger a non-viability loss absorption event, and the terms of the instrument may provide for other events that result in its conversion to ordinary shares.

Application of subpart 2F to instruments issued by fully consolidated operating subsidiaries

- 2.67 Where an instrument has been included in the regulatory capital of the banking group and that instrument has been issued by a fully consolidated operating subsidiary of the registered bank in accordance with subpart 2D, the requirements of this subpart must be met in relation to that instrument. For the avoidance of doubt, section 2.56 applies in the following manner:

The capital instrument must include, as a term of the instrument, a right held by the subsidiary, exercisable upon the occurrence of a non-viability trigger event (as defined in section 2.61), to irrevocably:

- (a) convert the instrument, in part or full, into the ordinary shares of the subsidiary or the registered bank; or

- (b) write off the instrument, in part or full, in a manner that meets the requirements of section 2.65; or
- (c) convert the holder's (Holder A) interest in the instrument, in part or full, into the ordinary shares of a parent entity (Issuer A) of the registered bank in the manner specified in section 2.59.

2.68 The trigger event for the subsidiary is:

- (a) a direction given, by notice in writing, to the subsidiary by the Reserve Bank under section 113 of the Act, on the basis that the financial position of the subsidiary is such that it meets any of the grounds in subsections 113(1)(a)-(d) of the Act, requiring the subsidiary to exercise its rights of either conversion or write-off under the instrument; or
- (b) the subsidiary being made subject to statutory management by an Order in Council issued pursuant to section 117 of the Act or section 170 of the Insurance (Prudential Supervision) Act 2010.

2.69 If section 2.59 applies to instruments issued by a subsidiary of the registered bank, the right to effect conversion must be held by the subsidiary. References to a parent entity should be read as references to a parent entity of the registered bank. Subsection 2.59(a)(ii) applies such that both the registered bank and subsidiary must irrevocably cease to have any obligation to repay the principal or make distributions or payments under the instrument, except to the extent that a parent entity of the registered bank (whether Issuer A or not), being a New Zealand company, may receive ordinary shares in the registered bank or subsidiary.

2.70 For the purposes of section 2.60, the value of the capital instrument issued by the subsidiary must be reduced by any potential tax or other offsets that may reduce the amount of Common Equity Tier 1 capital generated for the subsidiary as the result of conversion or write-off.

2.71 In the event of write-off, subsection 2.65(a) applies such that no person may have any claim against either the registered bank or the subsidiary, including in the event of liquidation of the registered bank or subsidiary, in regard to any portion of the instrument written off.

2.72 When applying this subpart to instruments issued by a subsidiary, all other references to a registered bank in this subpart must be read as a reference to the subsidiary.

Application of subpart 2F to special purpose vehicles

2.73 Where an instrument has been included in the regulatory capital of the banking group and that instrument has been issued to a third party by an SPV of the registered bank in accordance with subpart 2G, the requirements of this subpart must be met in relation to that instrument. For the avoidance of doubt, section 2.56 applies in the following manner:

The instrument issued by the SPV to the third party and the instrument issued by the registered bank to the SPV must include, as a term of the instrument, a right held by the registered bank, exercisable upon the occurrence of a non-viability trigger event (as defined in section 2.61) to irrevocably:

- (a) convert the instrument, in part or full, into the ordinary shares of the registered bank; or
- (b) write off the instrument, in part or full, in a manner that meets the requirements of section 2.65; or
- (c) convert the holder's (Holder A) interest in the instrument, in part or full, into the ordinary shares of a parent entity (Issuer A) of the registered bank in the manner specified in section 2.59.

Despite anything to the contrary in this part, where an instrument issued by an SPV provides a conversion feature (under either subsection 2.56 (a) or (c)), the matching instrument issued by the registered bank may provide a write-off feature.

- 2.74 If section 2.59 applies to an instrument issued by an SPV of the registered bank, the right to effect conversion must be held by the registered bank. References to a parent entity should be read as references to a parent entity of the registered bank. Subsection 2.59(a)(ii) applies such that both the registered bank and SPV must irrevocably cease to have any obligation to repay the principal or make distributions or payments under the instrument, except to the extent that a parent entity of the registered bank (whether Issuer A or not), being a New Zealand company, may receive ordinary shares in the registered bank.
- 2.75 For the purposes of section 2.60, the value of the capital instrument must be reduced by any potential tax or other offsets that may reduce the amount of Common Equity Tier 1 capital generated for the registered bank as the result of conversion or write-off of the instruments issued by the SPV to third parties or the instruments issued by the registered bank to the SPV.
- 2.76 In the event of write-off, subsection 2.65(a) applies such that no person may have any claim against either the registered bank or the SPV, including in the event of liquidation of the registered bank or SPV, in regard to any portion of the instruments that has been written off.
- 2.77 When applying this subpart to instruments issued by an SPV, all other references in this subpart should be read as a reference to the registered bank.

Subpart 2G – Capital instruments issued by special purpose vehicles

Capital instruments issued by special purpose vehicles

2.78 In order for a capital instrument issued by an SPV to third party investors to qualify as regulatory capital, the following criteria must be fully satisfied:

- (a) The SPV issuing the instrument is a fully consolidated subsidiary of the registered bank.
- (b) The registered bank issues an instrument to the SPV for which the terms and conditions match in all material respects the terms and conditions of the instrument issued by the SPV to third party investors. This requires that the maturity dates, interest rates and payment dates and any repayment terms match and that the instruments be of the same category of regulatory capital.²⁴
- (c) The instrument issued by the registered bank to the SPV must meet the criteria for classification as Additional Tier 1 capital or the criteria for classification as Tier 2 capital as set out in subsection 2.13(a) and subsection 2.16(a) respectively.
- (d) The instruments issued by the SPV would, if issued by the registered bank, meet the criteria for classification as Additional Tier 1 capital or the criteria for classification as Tier 2 capital as set out in subsection 2.13(a) and section 2.16(a) respectively.
- (e) The proceeds from the issue of the capital instrument by the SPV must be immediately and directly invested in, and available without limitation to, the registered bank.
- (f) The amount of capital issued by consolidated subsidiaries to third parties that may be included in Tier 1 or total capital is to be determined in accordance with subpart 2D. However, where the consolidated subsidiary issues the capital through an SPV, the requirements of this subpart must be met, as if the subsidiary were the registered bank, in addition to the requirements of subpart 2D.

2.79 Ordinary shares issued by an SPV cannot be included in Common Equity Tier 1 capital.

²⁴ Despite this provision, a bank may allow for an instrument issued by the bank to the SPV to have a write-off feature even if the instrument issued by the SPV to the third party investor provides for conversion.

Subpart 2H – Approval processes

- 2.80 The Reserve Bank document “Application for capital recognition or repayment: material to be provided to the Reserve Bank” (BS16), dated December 2012 contains the forms a registered bank must complete on making an application to the Reserve Bank in relation to the approval processes outlined below.

Recognition of regulatory capital

- 2.81 A registered bank must have received a notice of non-objection from the Reserve Bank before including any Additional Tier 1 or Tier 2 instrument within regulatory capital.²⁵
- 2.82 The registered bank should address an application for a notice of non-objection to the relevant bank supervisor. On making an application, the registered bank is required to complete the form: *Application for non-objection to treat capital instruments as regulatory capital*.
- 2.83 A registered bank must exclude from regulatory capital any instrument or reserve for which the Reserve Bank has issued a notice in writing to the registered bank stating that, in the Reserve Bank’s opinion, the instrument or reserve does not adequately meet the qualifying criteria for the appropriate form of capital, or which, in the Reserve Bank’s opinion, does not make a genuine contribution to the financial strength of the registered bank or banking group.

Reserve Bank approval to apply transition arrangement to capital instruments

- 2.84 A registered bank must have received prior written approval from the Reserve Bank to include capital instruments in regulatory capital, in accordance with the arrangements in section 2.5 above (transitional arrangements).
- 2.85 An application for approval to treat an instrument under transition arrangements should be made to the relevant bank supervisor. On making an application, the registered bank must complete the form: *Application for treatment of capital instruments issued by a locally incorporated registered bank under the Reserve Bank’s Basel III transitional arrangements*.

Repayment

- 2.86 Except in the case of a loss absorption trigger event or a non-viability trigger event, a registered bank must not repay:
- an Additional Tier 1 capital instrument; or
 - a Tier 2 capital instrument prior to maturity; unless:
 - (a) the registered bank has received the prior written approval of the Reserve Bank; and
 - (b) prior to or concurrent with the repayment, the instrument is replaced with a paid-up capital instrument of the same or better quality and the terms and conditions of the replacement instrument are sustainable for the income capacity of the banking group, unless the registered bank demonstrates to the Reserve Bank’s satisfaction

²⁵ Approval is not needed to include reserves in regulatory capital.

that the banking group's capital position would be sufficiently above the minimum capital requirements after the repayment.

- 2.87 The registered bank should make an application for approval of repayment of a capital instrument to the relevant bank supervisor. On making an application, the registered bank is required to complete the form: *Application for approval to repay capital instrument*.
- 2.88 Members of the banking group must not do anything to create a market expectation that an Additional Tier 1 capital instrument will be repaid or that a Tier 2 capital instrument will be repaid prior to maturity or that supervisory approval will be granted for such a repayment. The Reserve Bank will not approve a repayment for the purpose of satisfying investor expectations.
- 2.89 Calling a capital instrument and replacing it with an instrument that is more expensive will not be permitted, unless the registered bank can satisfy the Reserve Bank as to the economic and prudential rationale for the call.

PART 3 – CAPITAL RATIOS

Introduction to part 3

- 3.1 This part sets out the method to be used for calculating the Common Equity Tier 1 capital ratio, the Tier 1 capital ratio and the Total Capital ratio for the registered bank and the banking group. This part also sets out the method to be used for calculating the buffer ratio for the banking group and includes definitions relevant to the operation of the buffer ratio.

Common Equity Tier 1 capital ratio

- 3.1A Common Equity Tier 1 capital ratio = Common Equity Tier 1 capital / (scalar x (risk-weighted on- and off-balance sheet credit exposures) + 12.5 x total capital charge for market risk exposure + 12.5 x total capital requirement for operational risk + supervisory adjustment).

Tier 1 capital ratio

- 3.2 Tier 1 capital ratio = Tier 1 capital / (scalar x (risk-weighted on- and off-balance sheet credit exposures) + 12.5 x total capital charge for market risk exposure + 12.5 x total capital requirement for operational risk + supervisory adjustment).

Total capital ratio

- 3.3 Total capital ratio = total capital / (scalar x (risk-weighted on- and off-balance sheet credit exposures) + 12.5 x total capital charge for market risk exposure + 12.5 x total capital requirement for operational risk + supervisory adjustment).

Capital ratio definitions

- 3.3A The phrase “risk-weighted on- and off-balance sheet credit exposures” in sections 3.1A, 3.2, 3.3 and 3.4A of this subpart includes all exposures captured by the definitions set out in sections 4.3 to 4.9 of part 4. Also included are exposures for which the standardised approach to credit risk is used.
- 3.4 The supervisory adjustment, if any, and the scalar to be used for credit risk exposures will be set out in the bank’s conditions of registration.

Buffer ratio

- 3.4A Buffer ratio = Surplus Common Equity Tier 1 capital / (scalar x (risk-weighted on- and off-balance sheet credit exposures) + 12.5 x total capital charge for market risk exposure + 12.5 x total capital requirement for operational risk + supervisory adjustment).

Buffer ratio definitions

- 3.4B “Distributions, for the purposes of the buffer ratio, means:
- (a) Dividends;
 - (b) share buybacks; and
 - (c) discretionary payments made to holders of Additional Tier 1 capital instruments (including all payments of dividends or interest).

- 3.4C The following are not distributions for the purposes of the buffer ratio:
- (a) Distributions the registered bank is contractually obliged to make (such distributions will not exist in the case of Common Equity Tier 1 or Additional Tier 1 instruments).
 - (b) Payments that do not result in a depletion of Common Equity Tier 1 capital, such as scrip payment.
- 3.4D “Earnings” means current year distributable profits calculated:
- (a) prior to the deduction of distributions; and
 - (b) net of the tax that would have been reported had none of the distributable items been paid.
- 3.4E “Surplus Common Equity Tier 1 capital” means any amount of Common Equity Tier 1 capital that is not required to meet minimum capital ratio requirements (if minimum capital ratio requirements are not met, there will not be any Surplus Common Equity Tier 1 capital).

PART 4 – INTERNAL RATINGS BASED APPROACH TO CREDIT RISK

- 4.1 This part sets out the internal ratings based (IRB) approaches to measuring credit risk exposure.

Subpart 4A – Categorisation of exposures

- 4.2 Banks approved to use the IRB approach must categorise banking-book exposures into the following asset classes: corporate; sovereign; bank; retail; equity; and a residual class that includes certain kinds of leases, fixed assets and all other claims.

Within the corporate exposure class, four sub-classes of specialised lending and a farm lending sub-class are separately identified. Within the retail exposure class, five exposure sub-classes are separately identified. Within the corporate and retail exposure classes, a distinct treatment for purchased receivables is allowed under certain conditions. For each of these classes and sub-classes of exposures, a particular formula must be used to calculate the corresponding capital requirement.

Sub-part 4B sets out the treatment that must be applied to each exposure for the purposes of deriving minimum capital requirements under the IRB approaches. Sub-part 4C sets out the minimum requirements for the use of the IRB approaches.

For a discussion of securitisation exposures, see Part 5.

Definitions of exposure categories

- 4.3 This sub-part sets out the definitions for the exposure classes that apply under the IRB approach.

4.4 Definition of corporate exposures

A corporate exposure is defined as a debt obligation of a corporation, partnership, or proprietorship that does not fit into another IRB exposure class. Banks may separately address exposures to small- and medium-sized entities (SME) in a Retail SME sub-category, as defined in section 4.7(c).

(a) Specialised lending

Within the corporate exposure class, there are four sub-classes of specialised lending (SL). A specialised lending exposure possesses the following characteristics, either in legal form or in economic substance:

- An exposure to an entity (often a special purpose entity (SPE)) which exists specifically to finance and/or operate physical assets and is to a borrowing entity that has no other material assets or activities, and therefore little or no independent capacity to repay the obligation, apart from the income that it receives from the asset(s) being financed;
- The terms of the obligation give the registered bank a substantial degree of control over the asset(s) and the income that it generates; and
- As a result of the preceding factors, the primary source of repayment of the obligation is the income generated by the asset(s), rather than the independent capacity of a broader commercial enterprise.

The four sub-classes of specialised lending are project finance, object finance, commodities finance, and income-producing real estate. Each of these sub-classes is defined below.

(i) Project finance

Project finance (PF) is a method of funding in which the revenues generated by a single project act as the primary source of both the repayment and the security for the exposure. This type of financing is usually for large, complex and expensive installations and may be for either new installations or refinancing existing installations, with or without improvements.

The borrower is usually an SPE that is not permitted to perform any function other than developing, owning, and operating the installation. Consequently, repayment depends primarily on the project's cash flow and on the collateral value of the project's assets.

(ii) Object finance

Object finance (OF) refers to a method of funding the acquisition of physical assets where the repayment of the exposure is dependent on the cash flows generated by the specific assets (i.e. the "objects") that have been financed by and pledged or assigned to the lender. A primary source of these cash flows might be rental or lease contracts with one or more third parties.

(iii) Commodities finance

Commodities finance (CF) refers to structured short-term lending to finance reserves, inventories, or receivables of exchange-traded commodities, where the exposure will be repaid from the proceeds of the sale of the commodity and the borrower has no independent capacity to repay the exposure. This is the case when the borrower has no other activities and no other material assets on its balance sheet. The structured nature of the financing is designed to compensate for the weak credit quality of the borrower. The exposure's rating reflects its self-liquidating nature and the structure of the transaction rather than the credit quality of the borrower.

Such lending should be distinguished from exposures financing the reserves, inventories, or receivables of other more diversified corporate borrowers. Banks are able to rate the credit quality of the latter type of borrowers based on their broader ongoing operations. In such cases, the value of the commodity serves as a risk mitigant rather than as the primary source of repayment.

(iv) Income-producing real estate

Income-producing real estate (IPRE) refers to a method of providing funding to real estate where the prospects for repayment and recovery on the exposure depend primarily on the cash flows generated by the asset.

The distinguishing characteristic of IPRE versus other corporate exposures that are collateralised by real estate is the strong positive correlation in the IPRE case between the prospects for repayment of the exposure and the prospects for recovery in the event of default, with both depending primarily on the cash flows generated by a property.

(b) Eligible corporate purchased receivables

In general, for purchased corporate receivables, banks should assess the default risk of individual obligors consistent with the rules for corporate, sovereign and bank exposures see 4.11 to 4.143.

Alternatively, a bank will be allowed to use the "top-down" approach, in which exposures are pooled for the purposes of calculating capital requirements, if its programme for corporate receivables complies with both the criteria for eligible receivables and the minimum operational requirements of the top-down approach. To use the top-down approach, a bank must have written approval from the Reserve Bank.

The use of the top-down treatment for purchased receivables will be allowed only where a bank would face undue burden were the bank required to apply the minimum requirements for the IRB approach to corporate exposures.

Primarily, the top-down approach is intended for receivables that are purchased for inclusion in asset-backed securitisation structures, but banks might also be allowed to use this approach for appropriate on-balance sheet exposures that share the same features.

A bank will be permitted to use the top-down approach for purchased corporate receivables only if the following minimum requirements are met:

- The receivables are purchased from unrelated, third-party, sellers.²⁶
- The receivables must be generated on an arm's-length basis between the seller and the obligor.²⁷
- The purchasing bank has a claim on all proceeds from the pool of receivables or a pro-rata interest in the proceeds.
- For amounts over NZD 100,000, capital charges must be calculated using the minimum requirements for the “bottom-up” approach for corporate exposures, whereby estimated capital charges are calculated from data on the individual exposures (rather than pools of exposures).

The existence of full or partial recourse to the seller does not automatically disqualify a bank from adopting the top-down approach. If a bank is to be allowed to use the top-down approach, however, the cash flows from the purchased corporate receivables must be the primary protection against default risk as determined by the rules for purchased receivables, and the bank must meet the eligibility criteria and operational requirements for purchased receivables (Sections 4.307 – 4.312).

(c) **Farm lending exposures**

Within the corporate asset class, farm lending exposures are those to borrowers that are classified as ‘agriculture’ in ANZSIC06 (i.e. codes in the range 011 to 0199).

4.5 **Definition of sovereign exposures**

This exposure class covers all exposures to the Crown (as defined in the Public Finance Act 1989) or the Reserve Bank of New Zealand, or to any other sovereign or its central bank. The exposure class also covers multilateral development banks and other international organisations that receive a 0 per cent risk weight under the standardised approach and are listed as follows.

- (a) International Bank for Reconstruction and Development
- (b) International Finance Corporation
- (c) Asian Development Bank
- (d) African Development Bank

²⁶ i.e. The bank must not have originated the receivables either directly or indirectly.

²⁷ Consequently, intercompany accounts receivable and receivables subject to contra-accounts between firms that buy and sell to each other are ineligible. (Contra-accounts involve a customer buying from and selling to the same firm, giving rise to the risk that debts may be settled through payments in kind rather than cash. Invoices between the companies for such transactions could thus be offset against each other instead of being paid. This practice could defeat a security interest when challenged in court.)

- (e) European Bank for Reconstruction and Development
- (f) Inter-American Development Bank
- (g) European Investment bank
- (h) European Investment Fund
- (i) Nordic Investment Bank
- (j) Caribbean Development Bank
- (k) Islamic Development Bank
- (l) Council of Europe Development Bank
- (m) Bank for International Settlements
- (n) International Monetary Fund
- (o) European Central Bank
- (p) European Community
- (q) International Finance Facility for Immunization

4.6 **Definition of bank exposures**

This exposure class covers exposures to banks, public sector entities (local authorities as defined for the purposes of the Local Government (Rating) Act 2002), and to any multilateral development bank that does not receive a 0 per cent risk weight under the standardised approach (as identified in section 4.5).

4.7 **Definition of retail exposures**

Retail exposures are to individuals (that is, natural persons) and to small and medium enterprises. To be categorised as a retail exposure, an exposure must meet the general criteria described in the following sections and the criteria specific to one of the retail exposure sub-classes discussed in this section.

A retail exposure must be one of a large pool of exposures sharing similar risk characteristics that are managed by the bank on a pooled basis.²⁸

Exposures to individuals are generally eligible for retail treatment regardless of the size of the exposure.

(a) **Exposures secured by residential mortgages**

Residential mortgage exposures are eligible for retail treatment regardless of exposure size.

²⁸ This does not prevent a bank from treating exposures individually at some stages in the risk-management process.

(b) Qualifying revolving retail exposures (QRRE)

A sub-portfolio must meet the following criteria to be treated as a qualifying revolving retail exposure (QRRE).

- (i) The exposures are revolving, unsecured, and uncommitted (both contractually and in practice).²⁹
- (ii) The exposures are to individuals and not explicitly for business purposes.
- (iii) The maximum exposure to a single individual in the sub-portfolio is NZD 100,000 or less.
- (iv) Sub-portfolios to which banks intend to apply the QRRE risk-weight function must have exhibited low volatility of loss rates relative to their average level of loss rates (particularly within low-PD bands). Their loss rates must be relatively insensitive to downturn conditions.
- (v) Data on loss rates for the sub-portfolio must be retained in order to allow analysis of the volatility of loss rates.

(c) Retail exposures to small and medium enterprises (Retail SME)

Loans extended to small businesses and managed as retail exposures are eligible for retail treatment where the banking group's total business-related exposure to the borrowing enterprise (on a consolidated basis where applicable) is less than NZD 1 million.³⁰

(d) Eligible retail purchased receivables

Purchased retail receivables are eligible for the top-down approach provided that the purchasing bank complies with the minimum requirements for use of this approach. The bank must also apply the minimum operational requirements as set out in the rules for purchased receivables (See sections 4.307 – 4.312)

(e) All other retail exposures**4.8 Definition of equity exposures**

In general, equity exposures are defined on the basis of the economic substance of the instrument.³¹ An instrument is considered to be an equity exposure if it meets all of the following requirements:

²⁹ In this context, revolving exposures are defined as those for which outstanding balances are permitted to fluctuate up to a limit established by the bank based on customers' decisions to borrow and repay.

³⁰ Small business loans extended through or guaranteed by an individual are subject to the same exposure threshold.

³¹ They include both direct and indirect ownership interests, whether voting or non-voting, in the assets and income of a commercial enterprise or of a financial institution that is not consolidated or deducted pursuant to the rules regarding the scope of application of this capital-adequacy framework (as set out in Part 2).

- (a) it is irredeemable in the sense that the return of invested funds can be achieved only by the sale of the investment or sale of the rights to the investment or by the liquidation of the issuer;
- (b) it does not embody an obligation on the part of the issuer; and
- (c) it conveys a residual claim on the assets or income of the issuer.

Additionally any of the following instruments must be categorised as an equity exposure:

- (d) An instrument with the same structure as those permitted as Tier 1 capital for registered banks.
- (e) An instrument that embodies an obligation on the part of the issuer and meets any of the following conditions:
 - (i) the issuer may defer indefinitely the settlement of the obligation;
 - (ii) the obligation requires (or permits at the issuer's discretion) settlement by issuance of a fixed number of the issuer's equity shares;
 - (iii) the obligation requires (or permits at the issuer's discretion) settlement by issuance of a variable number of the issuer's equity shares and (all else being equal) any change in the value of the obligation is attributable to, comparable to, and in the same direction as, the change in the value of a fixed number of the issuer's equity shares;³² or
 - (iv) the holder of the instrument is able to require that the obligation be settled in equity shares, unless the instrument trades more like the debt of the issuer than like the issuer's equity.
- (f) Debt obligations and other securities, partnerships, derivatives or other vehicles structured with the intent of conveying the economic substance of equity ownership are to be treated as equity holdings under IRB.
- (g) Liabilities whose return links directly to that of equities should be treated as equity under IRB.
- (h) Equities that are recorded as a loan but arise from a debt/equity swap made as part of the orderly realisation or restructuring of the debt are included in the definition of equity holdings.
- (i) Equity investments that are structured with the intent of conveying the economic substance of debt holdings or securitisation exposures must not be treated as equity holdings.

³² For certain obligations that require or permit settlement by issuance of a variable number of the issuer's equity shares, the change in the monetary value of the obligation is equal to the change in the fair value of a fixed number of equity shares multiplied by a specified factor. Those obligations meet this condition if both the factor and the referenced number of shares are fixed. For example, an issuer may be required to settle an obligation by issuing shares with a value equal to three times the appreciation in the fair value of 1,000 equity shares. That obligation is considered to be the same as an obligation that requires settlement by issuance of shares equal to the appreciation in the fair value of 3,000 equity shares.

4.9 All Other Exposures

This exposure class includes all exposures that do not come within any of the exposure classes defined above.

Subpart 4B – Rules for applying the IRB approach to credit risk

Introduction

4.10 This sub-part sets out the method of calculating capital requirements in relation to unexpected loss (UL) for each of the classes of exposure identified in Sub-part 4A above. The capital requirements are generally calculated using prescribed functional forms.³³

The functional forms require estimates, for each exposure class, of four risk components: probability of default (**PD**), loss given default (**LGD**), exposure at default (**EAD**) and effective maturity (**M**). The methodology and requirements for deriving those estimates, taking one exposure class at a time, are set out below.

Corporate, sovereign and bank exposures

4.11 For the corporate, sovereign and bank IRB exposure classes there are two IRB approaches for determining the credit risk regulatory capital charge: a foundation IRB (**FIRB**) approach and an advanced IRB (**AIRB**) approach. For the four corporate exposure sub-classes identified as specialised lending (**SL**), an IRB approval may specify that an alternative supervisory slotting approach is to be used (rather than the FIRB or AIRB approach).

4.12 Under the FIRB approach, own estimates of probability of default (PD) associated with each obligor grade are to be used. Supervisory estimates are to be used for effective maturity (M) for each facility; the loss given default (LGD); and exposure at default (EAD) credit risk components.

³³ For Specialised lending exposures, the capital requirements are calculated using risk weights determined by a slotting approach, as provided for in section 4.143, while for some other types of exposures such as equities and fixed assets, prescribed risk weights apply (as provided for in sections 4.200-4.203 and 4.206).

- 4.13 Except as noted in section 4.13A, under the AIRB approach, own estimates for all credit risk components (i.e. PD, M, LGD and EAD) are to be used unless otherwise specified by the Reserve Bank. Farm lending exposure LGD estimates are subject to minimum LGD values as set out in section 4.61A.
- 4.13A Under the AIRB approach in respect of credit risk for farm lending exposures, an effective maturity (M) for each facility is specified in section 4.86A. The bank must choose to use the specified value or its own estimates of M subject to each own estimate being greater than or equal to the specified value.
- 4.14 The following sections set out the methodology and requirements for determining estimates of the credit risk components, that is PD, LGD, EAD and M, for corporate, bank and sovereign exposures, under each of the FIRB and AIRB approaches. These are followed by details of how guarantees and credit derivatives may be recognised and taken into account in PD and LGD estimates, again under both the FIRB and AIRB approaches. Sections 4.134-4.138 set out the functional form for determining the capital requirement for UL for corporate, bank and sovereign exposures, and the risk-weighting methodology for specialised lending (SL) exposures is set out in section 4.143.

Credit risk components – probability of default (PD) estimates

- 4.15 The minimum requirements, under both the FIRB and AIRB approaches, for the derivation of own PD estimates associated with each internal obligor grade are detailed in Sub-part 4C: Minimum requirements for use of IRB Approach.
- 4.16 For corporate and bank exposures, PD is the greater of the one-year PD associated with the internal obligor grade to which that exposure is assigned and 0.03 per cent.
- 4.17 For sovereign exposures, PD is the one-year PD associated with the internal obligor grade to which that exposure is assigned.
- 4.18 A 100 per cent PD must be assigned to default grades (See section 4.272).
- 4.19 For the portion of an exposure covered by an eligible guarantee or credit derivative, and subject to meeting the requirements set out in (See sections 4.98 to 4.133), a PD may be adopted that is appropriate to the protection provider's obligor grade or, if a full substitution treatment is not warranted, some grade between that of the underlying obligor and the protection provider. In these cases, the capital requirement is to be based on the risk-weight function appropriate to the protection provider.

Credit risk components – loss given default (LGD) estimates

4.20 **LGD** is determined differently depending on whether the **FIRB** approach or **AIRB** approach is used.

FIRB approach

4.21 Under the FIRB approach supervisory estimates of LGD, determined in accordance with Table 4.1 must be used.

4.22 Threshold levels of eligible collateral (as a percentage of the exposure) that determine the effective LGD (LGD*) applicable to a transaction are denoted C* and C**, and are set out in table 4.1. The use of C* and C** in the calculation of (LGD*) is explained in section 4.55.

Table 4.1

LGD supervisory estimates

	Prescribed LGD	Level of collateralisation required for full recognition of collateral (C**)	Minimum level of collateralisation required for partial recognition of collateral (C*)
	(%)	(%)	(%)
Senior unsecured claims	45	N/A	N/A
Subordinated claims	75	N/A	N/A
Collateralised by eligible financial collateral	0	N/A	0
Collateralised by commercial or residential real estate	35	140	30
Collateralised by eligible financial receivables	35	125	0

Senior unsecured claims

4.23 Senior claims on corporates, sovereigns and banks that are not secured by eligible collateral must be assigned a 45 per cent LGD.

Subordinated claims

- 4.24 Subordinated claims on corporates, sovereigns and banks must be assigned a 75 per cent LGD. A subordinated claim is defined as a facility that is expressly subordinated to another facility.

Claims subject to collateralisation

- 4.25 Lower LGD estimates can be used where claims are subject to qualifying collateral. Details of qualifying collateral and the requirements to be met in order for collateral to qualify are set out below. Table 4.1 provides a summary.
- 4.26 LGD estimates can also be adjusted where the exposure is subject to a qualifying guarantee or hedged by a credit derivative. The requirements to be met in order for guarantees and credit derivatives to be taken into account, and details of how they are to be taken into account, are set out separately in sections 4.98 to 4.133 below.

Claims secured by eligible financial collateral

- 4.27 Under the FIRB approach, the effective loss given default (LGD*) applicable to a transaction secured by eligible financial collateral (defined below, and subject to complying with the minimum requirements for recognition defined below) is determined as follows:

$$\text{LGD}^* = \text{LGD} \times (\text{E}^* / \text{E})$$

where:

LGD is that of a senior unsecured exposure before recognition of collateral (i.e. 45 per cent);

E is the current value of the exposure (i.e. cash or securities lent or posted); and

E* is the exposure value after credit risk mitigation as detailed in sections 4.36 to 4.37 below.

- 4.28 The forms of financial collateral eligible for credit risk mitigation are:

(a) **Cash**

- (i) cash on deposit with the lender;
- (ii) a certificate of deposit or other similar instrument issued by the lender;

(b) **Rated debt securities**

a debt security that has an issue-specific rating agency assessment; and that is:

- (i) a short-term claim on a sovereign, multilateral development bank or other international organisation, public sector entity, bank or corporate that has a rating grade of 1, 2, or 3 (see Table 4.2)³⁴; or
- (ii) a long-term claim on a sovereign that has a rating grade of 1, 2, 3, or 4 (see table 4.3), or a long-term claim on another entity that has a rating grade of 1, 2, or 3 (see table 4.3);

(c) **Unrated debt securities**

a debt security that does not have an issue-specific rating agency assessment; and that is

- (i) issued by another bank; and
- (ii) listed on a recognised exchange; and
- (iii) classified as senior debt; and
- (iv) issued by a bank that has other rated issues of the same seniority which have an internal rating grade of 1, 2, or 3.

(d) **Equity securities**

An equity security that is included in the NZX 50 or an overseas equivalent.

³⁴ A list of multilateral development banks and international organisations is provided in section 4.5.

Table 4.2

Rating grades for short-term rating agency credit
assessments

<i>Rating grade</i>	<i>Rating agency credit assessments</i>		
	<i>Standard & Poor's Corporation</i>	<i>Moody's Investor Services</i>	<i>Fitch Ratings</i>
1	A-1	P-1	F-1
2	A-2	P-2	F-2
3	A-3	P-3	F-3
4	Other	Other	Other

Table 4.3

Rating grades for long-term and issuer rating
agency credit assessments

<i>Rating grade</i>	<i>Rating agency credit assessments</i>		
	<i>Standard & Poor's Corporation</i>	<i>Moody's Investor Services</i>	<i>Fitch Ratings</i>
1	AAA AA+ AA AA-	Aaa Aa1 Aa2 Aa3	AAA AA+ AA AA-
2	A+ A A-	A1 A2 A3	A+ A A-
3	BBB+ BBB BBB-	Baa1 Baa2 Baa3	BBB+ BBB BBB-
4	BB+ BB BB-	Ba1 Ba2 Ba3	BB+ BB BB-
5	B+ B B-	B1 B2 B3	B+ B B-
6	CCC+ CCC CCC- CC C D	Caa1 Caa2 Caa3 Ca C C	CCC+ CCC CCC- CC C D

Recognition of eligible financial collateral under the FIRB approach is subject to the following minimum conditions:

- (i) There must be a formal written contractual agreement between the lender (or party holding the claim) and the party lodging the collateral which establishes the lender's direct, explicit, irrevocable and unconditional recourse to the collateral.
- (ii) The legal mechanism by which collateral is pledged or transferred must ensure that the lender has the right to liquidate or take legal possession of it promptly in the event of the default, insolvency, statutory management, voluntary administration, receivership, or bankruptcy of the counterparty or custodian of the collateral, or where any other credit event permitting enforcement of collateral occurs.
- (iii) The lender must take all steps necessary to fulfil requirements under the law applicable to its interest in the collateral for obtaining and maintaining an enforceable security interest. This includes clear and robust procedures for the prompt liquidation of collateral to ensure that any legal conditions required for declaring the default of the counterparty and liquidating the collateral are observed and that the collateral can be liquidated promptly.
- (iv) Securities issued by the counterparty or any person related to, or associated with, the counterparty, or by any other person whose credit quality has a material positive correlation with the credit quality of the original counterparty, are not eligible for recognition under this framework.
- (v) Cash collateral must be lodged with the lender. If cash collateral is in the form of a certificate of deposit or bank bill issued by the lender, the lender must retain physical possession of the instrument until the collateral obligations have been extinguished.
- (vi) Other forms of collateral (ie non-cash collateral) must be held by an independent custodian or third party or by the lender. Where the collateral is held by someone other than the lender, the lender must ensure that the holder segregates the collateral from its own assets.
- (vii) Where collateral is held by a third party, that other party must indemnify or guarantee the borrower's obligations to the lender in a way that is legally robust.

4.29 The methodology set out in section 4.27 is only used to calculate LGD*. Exposure at default (**EAD**) must be determined without taking into account the effect of any collateral.

4.30 **Overview of methodology for adjusting LGD for eligible financial collateral**

The adjusted exposure amount E^* takes into account the effects of eligible financial collateral. This is done by using haircuts to adjust both the amount of the exposure to the counterparty (the volatility adjusted exposure amount) and the value of the collateral (the volatility adjusted collateral amount).

4.31 Where the exposure and collateral are held in different currencies, the bank must make an additional downward adjustment to the volatility adjusted collateral amount to take into account possible future fluctuations in exchange rates.

4.32 A capital requirement applies to banks on either side of a collateralised transaction. For example, both repurchase and reverse repurchase agreements are subject to capital requirements. Likewise both sides of a securities lending and borrowing transaction are subject to explicit capital charges, as is the posting of securities in connection with a derivative exposure or other borrowing.

4.33 The difference between the volatility adjusted exposure amount and the volatility adjusted collateral amount (including any required adjustments for foreign exchange movements) is the adjusted exposure amount after credit risk mitigation.

4.34 The size of the required haircuts depends on the type of instrument, type of transaction and the frequency of re-margining or revaluation.

4.35 For certain types of repos and reverse repos a zero hair cut may be used to calculate the exposure amount after credit risk mitigation (see section 4.41 conditions for a zero haircut).

4.36 **Calculation of adjusted exposure amount for collateralised transactions**

For a collateralised transaction, the adjusted exposure amount after risk mitigation is calculated as follows:

$$E^* = \max \{0, [E \times (1 + H_e) - C \times (1 - H_c - H_{fx})]\}$$

Where:

E^* = the adjusted exposure amount after risk mitigation

E = current value of the exposure

H_e = haircut appropriate to the exposure

C = current value of the collateral

H_c = haircut appropriate to the collateral

H_{fx} = haircut appropriate for currency mismatch between the collateral and exposure.

4.37 In the case of OTC derivatives $E \times (1 + H_e)$ is replaced by the credit equivalent amount of the OTC derivative calculated using the current exposure (mark to market) method, ie replacement cost and potential future exposure.

4.38 **Standard supervisory haircuts for exposures secured by eligible financial collateral**

The standard supervisory haircuts for exposures secured by eligible financial collateral, expressed as percentages, are as set out in the table 4.4:

Table 4.4

Standard supervisory haircuts

External rating grade for debt securities	Residual maturity	Sovereigns ³⁵	Other Issuers ³⁶
1 (long-and-short-Term)	≤ 1 year	0.5	1
	> 1 year, ≤ 5 years	2	4
	> 5 years	4	8
2-3 (long-and-short-term) and unrated bank securities	≤ 1 year	1	2
	> 1 year, ≤ 5 years	3	6
	> 5 years	6	12
4 (long term)	All	15	N/A
Equities in the NZX 50 or an overseas equivalent		15	
Other equities (including convertible bonds) listed on a recognised exchange		25	
Cash in the same currency ³⁷		0	
Currency mismatch		8	

4.39 For transactions in which the bank lends non-eligible instruments, the haircut to be applied on the exposure must be the same as that for other equities, i.e. 25%.

³⁵ This includes the international banking agencies and regional development banks qualifying for a zero risk weight as identified in section 4.5, Categorisation of exposures.

³⁶ This includes banks, PSEs and corporates.

³⁷ Eligible cash collateral.

4.40 **Adjustments to standard supervisory haircuts where marking to market or re-margining is not undertaken on a daily basis**

When re-margining or revaluation is not undertaken on a daily basis, the haircut must be scaled up depending on the actual number of business days between re-margining or revaluations, using the formula detailed in this section, and the minimum holding periods set out in Table 4.5.

Table 4.5
Minimum holding periods

<i>Transaction type</i>	<i>Minimum holding period</i>	<i>Condition</i>
Repo style transactions	5 business days	Daily re-margining
Other capital market transactions	10 business days	Daily re-margining
Secured lending	20 business days	Daily revaluation

Adjustment for haircuts

- (a) The supervisory haircut for a collateralised exposure is calculated by the formula:

$$H = H_M \times \sqrt{\frac{N_R + (T_M - 1)}{10}}$$

- (b) In the formula—
- (i) “H” is the haircut
 - (ii) “H_M” is the haircut for the exposure assuming daily re-margining or revaluation:
 - (iii) “T_M” is the minimum holding period for the type of transaction, as per Table 4.3:
 - (iv) “N_R” is the actual number of business days between:
 - (a) re-margining, for capital market transactions; or
 - (b) revaluation, for secured transactions.

When a bank calculates the volatility on a T_N day holding period which is different from the specified minimum holding period T_M , the H_M is to be calculated using the square root of time formula:

$$H_M = H_N \times \sqrt{\frac{T_M}{T_N}}$$

Where:

T_N = holding period used by the bank for deriving H_N

H_N = haircut based on the holding period T_N

4.41 **Conditions for a zero haircut**

For repos/reverse repos and securities lending/borrowing transactions, where the counterparty is a core market participant (as defined in the following section 4.42) a haircut of zero will apply if the following conditions are satisfied:

- (a) The exposure and collateral are both either cash, or a sovereign security with an internal rating grade of 1 as defined in Table 4.2, “Rating grades for short-term rating agency credit assessments”.
- (b) Both the exposure and collateral are denominated in the same currency.
- (c) Either the transaction is overnight or both the exposure and collateral are marked to market daily and are subject to daily re-margining.
- (d) Following a counterparty’s failure to re-margin the time that is required between the last mark to market before the failure to re-margin and the liquidation of the collateral must not be more than 4 business days.
- (e) The transaction is settled across a settlement system that is regularly used by core market participants for that type of transaction (as defined in section 4.42 below).
- (f) The documentation covering the agreement is standard ISDA documentation for repos/reverse repos and securities borrowing/lending transactions in the securities concerned.
- (g) The transaction is governed by documentation specifying that if the counterparty fails to satisfy an obligation to deliver cash or securities or to deliver a margin call or otherwise defaults then the transaction is immediately terminable.
- (h) Upon any default event, regardless of whether the counterparty is insolvent, the bank has an unequivocal legally enforceable right to immediately seize and liquidate the collateral for its benefit.

4.42 **Core market participants**

The following entities are considered core market participants:

- (a) the New Zealand Government;
- (b) the Reserve Bank of New Zealand;
- (c) New Zealand banks and overseas banks.

4.43 **Maturity mismatch**

A maturity mismatch exists where the effective residual maturity of the term of lodgement of the collateral is less than the effective maturity of the exposure covered by the collateral.

4.44 Where there is a maturity mismatch, the collateral will only be recognised when the effective residual maturity of the term of lodgement of the collateral is greater than or equal to 12 months. Where the effective residual maturity of the term of lodgement of the collateral is less than 12 months, the collateral will not be eligible unless the term of lodgement matches the effective maturity of the underlying exposure. In all cases where there is a maturity mismatch, collateral will not be eligible when the effective residual maturity of the term of lodgement is 3 months or less.

4.45 Where the effective residual maturity of the term of lodgement of the collateral is less than the effective maturity of the exposure a maturity mismatch adjustment (as detailed in section 4.48 adjustment for maturity mismatch) is required for the purpose of calculating LGD.

4.46 **Effective maturity**

The effective maturity of the underlying exposure is the longest possible remaining time before the counterparty is required to fulfill its obligation, taking into account any grace period.

4.47 The effective maturity of the collateral is the shortest possible term of lodgement for the collateral taking into account any clause in the documentation supporting the transaction that may reduce that term. Where the protection provider has the capacity to reduce the term of lodgement of the collateral, the maturity will always be the first date upon which the protection provider can exercise that discretion. Where the bank has the discretion to reduce the term of lodgement of the collateral and the terms of the transaction at origination of the exposure contain a positive incentive for the bank to exercise its discretion before contractual maturity, the remaining time to the first date when the discretion can be exercised is deemed to be the effective maturity.

4.48 **Adjustment for maturity mismatch**

Where there is a maturity mismatch between collateral and the exposure secured by the collateral the following adjustment must be made:

$$P_a = P \times (t-0.25)/(T-0.25)$$

Where

P_a = value of the collateral adjusted for maturity mismatch

P = collateral amount adjusted for any haircuts

t = min(T , effective residual maturity of the term of lodgement of the collateral) expressed in years

T = min(5, effective residual maturity of the exposure) expressed in years

CLAIMS SECURED BY COMMERCIAL OR RESIDENTIAL REAL ESTATE

4.49 The FIRB approach recognises commercial and residential real estate (as defined in section 4.50 below) as eligible collateral.

4.50 **Definition of commercial real estate (CRE) and residential real estate (RRE)**

CRE and RRE collateral for corporate, sovereign and bank exposures is defined as:

- (a) collateral where the risk of the obligor defaulting is not materially dependent upon the performance of the underlying property or project but rather on the underlying capacity of the obligor to repay the debt from other sources. As such, repayment of the facility is not materially dependent on the cash flow generated by the CRE or RRE serving as collateral; and
- (b) the value of the pledged collateral must not be materially dependent on the performance of the obligor. This requirement is not intended to preclude situations where purely macro-economic factors affect both the value of the collateral and the performance of the obligor.

4.51 Income producing real estate (**IPRE**) that falls under the specialised lending exposure sub-class is excluded from recognition as collateral for corporate exposures under the FIRB approach.

4.52 Recognition of commercial and residential real estate as eligible collateral is subject to the operational requirements detailed in section 4.53 below.

4.53 **Operational requirements for commercial real estate and residential real estate**

Subject to meeting the definition in section 4.50 above, CRE and RRE are eligible for recognition as collateral for claims under the FIRB approach when all of the following operational requirements are met:

- (a) Legal enforceability: claims on collateral must be legally enforceable in all relevant jurisdictions and legal requirements for establishing a claim must be fulfilled. The collateral agreement and the legal process underpinning the transaction must allow for the prompt realisation of the collateral.
- (b) Net current market value of collateral: the collateral must be valued at no more than the net current market value.
- (c) Frequent revaluation: the value of the collateral must be monitored on a frequent basis; at a minimum, once every year. More frequent monitoring is required where the market is subject to significant changes in value.

4.54 Additional collateral management requirements are as follows:

- (a) lending policies must clearly document the types of CRE and RRE collateral that are acceptable.
- (b) steps must be taken to ensure that the property taken as collateral is adequately insured against damage and deterioration;
- (c) the extent of any permissible prior claims (e.g. taxation liabilities) on the property must be monitored and taken into account, on an ongoing basis;
- (d) the risk of environmental liability arising in respect of the collateral, such as the presence of toxic material on a property, must be monitored.

4.55 Under the FIRB approach, where CRE or RRE have been taken to secure an exposure, the methodology for determining LGD* is as follows:

- (a) where the level of collateralisation exceeds the threshold level of C** referred to in Table 4.1 of this Part, LGD* is 35 per cent;
- (b) where the level of collateralisation (C) is between the threshold levels C** and C*, the exposure is divided into fully collateralised and uncollateralised portions. The part of the exposure considered to be fully collateralised (C/C**) is assigned a supervisory LGD of 35 per cent. The remaining part of the exposure is regarded as unsecured and is assigned an LGD of 45 per cent. The effective LGD, LGD*, is the weighted average of the LGDs for the collateralised and uncollateralized portions of the credit exposure. That is:

$$\text{LGD}^* = C/C^{**} \times 35\% + ((1 - C/C^{**}) \times 45\%); \text{ and}$$
- (c) where the level of collateralisation is below the threshold level of C* as summarised in Table 4.1, the collateral is not recognised, i.e. LGD* is 45 per cent.

Table 4.1 summarises LGD* for different types of collateral and levels of collateralisation.

CLAIMS SECURED BY ELIGIBLE FINANCIAL RECEIVABLES

4.56 The FIRB approach recognises eligible financial receivables (as defined in section 4.57 below) as eligible collateral.

4.57 Definition of eligible financial receivables

Eligible financial receivables are claims with an original maturity of one year or less where repayment occurs through the commercial or financial flows related to the obligor's underlying business operations. This includes:

- (a) self-liquidating debt arising from the sale of goods or services linked to a commercial transaction; and
- (b) general amounts owed by buyers, suppliers, renters, national and local government authorities or other non-affiliated parties that are not related to the sale of goods or services linked to a commercial transaction.

Receivables from affiliates of the obligor (including subsidiaries and employees) and receivables associated with securitisations, sub-participations and credit derivatives will not be recognised as credit risk mitigants under the FIRB approach.

4.58 OPERATIONAL REQUIREMENTS FOR THE RECOGNITION OF ELIGIBLE FINANCIAL RECEIVABLES

Subject to meeting the definition in section 4.57 above, financial receivables are eligible for recognition as collateral under the FIRB approach when all of the following operational requirements are met.

(a) Legal certainty

Claims on collateral must be legally enforceable in all relevant jurisdictions and the legal requirements for establishing a claim must be fulfilled. There should be a framework that allows the lender to have a perfected first priority claim over the collateral.

The collateral agreement and the legal process underpinning the transaction must allow for the realisation of the value of the collateral within a reasonable timeframe. And there must be procedures to ensure that any legal conditions required for declaring the default of the customer and timely collection of collateral are observed. In the event of the obligor's financial distress or default, there must be legal authority to sell or assign the receivables to other parties without the consent of the receivables' obligor.

(b) Credit risk assessment

The credit risk of the financial receivables taken as collateral must be assessed, covering among other things, analysis of the obligor and the type of customers with whom the obligor transacts. Where reliance is placed on

the obligor to review the credit risk of its customers, the quality of the obligor's credit policies must be reviewed.

The margin between the amount of the exposure and the value of the receivables must reflect the cost of collection, concentration within the receivables pool pledged by the obligor and potential concentration risk across exposures overall.

(c) **Monitoring systems**

A continual and effective monitoring process over the financial receivables taken as collateral must be maintained. This process should include, as appropriate, ageing reports, control of trade documents, borrowing base certificates, frequent audits of collateral, confirmation of accounts, control of the proceeds of accounts paid, analyses of dilution³⁸ and regular financial analysis of both the obligor and the receivables' obligors, especially in the case when a small number of large receivables are taken as collateral. Additionally, compliance with loan covenants, environmental restrictions and other legal requirements must be reviewed on a regular basis.

(d) **Concentration limits**

There must be concentration limits that are monitored. The receivables pool should be diversified and correlation with the obligor should not be unduly high. Where correlation is high, for example where some issuers of the receivables are reliant on the obligor for their viability or the obligor and the issuers belong to a common industry, the attendant risks must be taken into account in the setting of margins for the collateral pool as a whole (refer sub-section 4.58(b) above).

(e) **Collection of receivable payments**

There must be a documented process for collecting cash remittances from the receivables' obligors in the event of the obligor's distress or insolvency. The requisite facilities for collection should be in place, even though the obligor would normally be looked to for collections.

4.59 Under the FIRB approach, where eligible financial receivables have been taken to secure an exposure, the methodology for determining LGD* is as follows:

- (a) where the level of collateralisation exceeds the threshold level of C** stated in table 4.1 of this Part, LGD* is 35 per cent;
- (b) where the level of collateralisation (C) is between the threshold levels C** and C*, the exposure is divided into fully collateralised and uncollateralised portions. The part of the exposure considered to be fully collateralised (C/C**) is assigned a supervisory LGD of 35 per cent. The remaining part of the exposure is regarded as unsecured and is assigned an LGD of 45 per cent. The effective LGD, LGD*, is the weighted average of the LGDs for

³⁸ Dilution refers to the possibility that the total amount of the receivables is reduced through cash or non-cash credits given by the obligor to the receivables' obligors.

the collateralised and uncollateralized portions of the credit exposure. That is:

$$\text{LGD}^* = C/C^{**} \times 35\% + ((1 - C/C^{**}) \times 45\%); \text{ and}$$

where the level of collateralisation is below the threshold level of C^* stated in table 4.1, the collateral is not recognised, i.e. LGD^* is 45 per cent.

Pools of collateral recognised under the foundation IRB approach

- 4.60 In the case where multiple forms of eligible collateral have been obtained, the exposure must be divided into portions fully covered by eligible financial collateral, eligible financial receivables and a residual portion (which may be fully or partly secured by CRE and RRE). The risk-weights for each portion must be calculated separately. In the case of the residual portion, where the ratio of the sum of the value of CRE and RRE to the reduced exposure is below the associated level of C^* , the exposure will receive the unsecured LGD value of 45%.

AIRB approach

- 4.61 A registered bank using the AIRB approach for the corporate, sovereign or bank exposure classes (or for certain exposures classes within those exposure classes) may use own estimates of LGD. The estimates must meet the requirements detailed in Sub-part 4C. The own estimates are to be determined according to the bank's own methodologies.

To the extent that exposures are secured by residential real estate the LGDs corresponding to different LVRs set out in table 4.11 must be used unless the bank has the consent of the Reserve Bank to use its own LGD estimates.

Farm lending exposures are subject to minimum LGD requirements as set out in section 4.61A

4.61A Own estimates of LGD for farm lending exposures must be greater than or equal to the following minimum values that correspond to different levels of LVR.

Table 4.5A: Minimum LGD for farm lending exposures

LVR	LGD
70% and over	42.5%
60-69%	40.0%
50-59%	32.5%
40%-49%	22.5%
30%-39%	15.0%
Under 30%	10.0%

For the purposes of this section, LVR (or loan to value ratio) is defined as the current loan balance as a percentage of the value of the security (as at the most recent valuation). The current loan balance includes the EAD amount of any off-balance sheet exposures calculated in accordance with section 4.84.

4.62 Where repurchase, reverse repurchase and securities borrowing or lending transactions are subject to a master netting agreement, the effect of the netting may be recognised, subject to the criteria in section 4.68(a) being satisfied. In this case, E* must be calculated as detailed in section 4.68 and used as the estimate of EAD. An own LGD estimate may be used for the unsecured equivalent amount (i.e. E*).

4.63 LGD estimates must be measured as a percentage of EAD.

Credit risk components – exposure at default (EAD) estimates

4.64 **EAD** is determined differently depending whether the **FIRB** approach or **AIRB** approach is being used. Under the FIRB approach supervisory estimates of EAD must be used. Under the AIRB approach, own values of EAD are required. The own values are to be determined according to the bank's own methodologies, but subject to those methodologies having been approved by the Reserve Bank,

FIRB approach

4.65 EAD in respect of each exposure (both on- and off-balance sheet) is measured gross of allowances for impairment and partial write-offs.

Exposure measurement for on-balance sheet credit exposures

4.66 The EAD estimate on a drawn amount (i.e. an on-balance sheet exposure) must not be less than the contractual amount owed by the obligor at the time of default, nor should it be less than the sum of:

- (a) the amount by which tier 1 capital would be reduced if the exposure were fully written-off; and
- (b) any associated allowance for impairment and partial write-offs.

4.67 When the difference between the EAD estimate and the sum of sub-sections 4.66(a) and 4.66(b) above is positive, this amount is termed a discount. Such discounts must not be taken into account when calculating risk-weighted assets. However, in calculating the capital requirement, such discounts may be included in the measurement of total eligible allowances for impairment for the purpose of offsetting expected losses.

4.68 Use of on-balance sheet netting under the FIRB and AIRB approaches

The following requirements apply to on-balance sheet netting under both the FIRB and AIRB approaches to credit risk.

On-balance sheet netting of loans and deposits may be recognised subject to satisfying the criteria detailed in section 4.68(a) below.

- (a) On-balance sheet netting is recognised when the following requirements are met:
 - (i) There must be a well-founded legal basis for concluding that the bilateral netting agreement is enforceable in each relevant jurisdiction regardless of whether the counterparty is insolvent or bankrupt.
 - (ii) The bank must at all times be able to determine the loans and deposits that are subject to the bilateral netting agreement.
 - (iii) The bank must monitor and control the relevant exposure on a net basis.
 - (iv) Loans are treated as exposures and deposits as cash collateral. The haircuts will be zero unless a currency mismatch exists, in which

case standard supervisory haircuts will apply, scaled up if daily mark to market is not conducted.

(v) The bank must monitor and control its roll-off risks.

(b) The following formula applies:

$$E^* = \max \{0, [E \times (1 + H_e) - C_a \times (1 - H_c - H_{fx})]\}$$

Where:

E^* = the exposure value after risk mitigation.

E = the current value of the exposure (ie the value of the loans) to the counterparty subject to the bilateral netting agreement

H_e = the current value of deposits from the counterparty subject to the bilateral netting agreement.

H_{fx} = the supervisory haircut for currency mismatches.

C_a =

(i) where there is no maturity mismatch between the collateral (ie the deposits) and the loan, C ;

(ii) where there is a maturity mismatch between deposits and loans, $C \times (t - 0.25) / (T - 0.25)$;

Where

C_a = value of collateral (deposits) adjusted for maturity mismatch

C = collateral amount

t = min (T , residual maturity of the deposits) expressed in years

T = min (5, residual maturity of the loans) expressed in years

Exposure after risk mitigation is given the risk weight applicable to the counterparty.

(c) **Treatment of repo style transactions covered by master netting agreements**

A bilateral netting agreement covering repo style transactions is recognised for credit risk mitigation purposes if, in all relevant jurisdictions, it meets the following conditions.

- (i) It is legally enforceable upon the occurrence of an event of default, regardless of whether or not the counterparty is insolvent, bankrupt or under statutory management.
- (ii) It gives the non-defaulting party the right to immediately terminate and close out all transactions under the agreement upon an event of default, including in the event of insolvency, bankruptcy, statutory management, liquidation, voluntary administration or similar circumstance.
- (iii) It provides for the netting of gains and losses on transactions (including the value of any collateral) terminated and closed out under it so that a single net amount is owed by one party to the other, including in situations where the counterparty is insolvent, under statutory management or bankrupt.
- (iv) It allows for the immediate liquidation or set off of collateral upon an event of default, including in the event of insolvency, bankruptcy, statutory management, liquidation, voluntary administration or similar circumstance.

The formula for calculating exposure, taking into account master netting agreements is:

$$E^* = \max \{0, [(\sum(E) - \sum(C)) + \sum(E_s \times H_s) + (E_{fx} \times H_{fx})]\}$$

Where:

E^* = the exposure value after credit risk mitigation

E = the current value of the exposure

C = the value of the collateral received

E_s = the absolute value of the net position in a given security

H_s = haircut appropriate to E_s

E_{fx} = absolute value of the net position in a currency different from the settlement currency

H_{fx} = haircut appropriate for currency mismatch

Exposure measurement for off-balance sheet exposures except foreign exchange, interest rate, equity and commodity-related derivatives

4.69 For off-balance sheet exposures, EAD is calculated as the notional amount of the exposure multiplied by a credit conversion factor (CCF) or in the case of an undrawn commitment, the undrawn amount multiplied by a CCF.

4.70 This subpart sets out the methodology to be used for converting off-balance sheet items other than market related contracts into credit equivalent amounts, and applying risk weights to the credit equivalent amounts.

4.71 **Calculating credit equivalent amounts for off-balance sheet items**

The credit equivalent amount for an off-balance sheet exposure is calculated under the formula:

$$\text{credit equivalent amount} = \text{credit conversion factor} \times \left(\text{principal amount} - \text{provision amount} \right)$$

In the formula:

- (a) “credit equivalent amount” is the on-balance sheet equivalent amount of the off-balance sheet exposure;
- (b) “credit conversion factor” is the credit conversion factor specified in this subpart for the off-balance sheet exposure;
- (c) “principal amount” is the principal amount of the off-balance sheet exposure;
- (d) “provision amount” is the total amount of any allowance for impairment for the exposure.

4.72 **Credit conversion factors for off-balance sheet items**

The credit conversion factors for off-balance sheet items are set out in Table 4.6. The risk weight for a non-market related off-balance sheet item is that applicable to a claim on the counterparty to the transaction or to the underlying exposure type, as specified in Table 4.6:

Table 4.6
Credit conversion factors

<i>Type of transaction</i>	<i>Credit conversion factor (%)</i>	<i>Risk weight by:</i>
direct credit substitute	100%	counterparty type
asset sale with recourse	100%	type of asset, or issuer of securities as appropriate
forward asset purchase	100%	type of asset
commitment with certain draw-down	100%	counterparty type
note issuance facility (regardless of maturity)	75%	counterparty type
revolving underwriting facility (regardless of maturity)	75%	counterparty type
performance-related contingency	50%	counterparty type
trade-related contingency	20%	counterparty type
placements of forward deposits	100%	counterparty type
other types of commitment	see Table 4.7	see subsection (e)

The credit conversion factors (CCF) for other commitments are set out in the following table:

Table 4.7
Credit conversion factors for other commitments

<i>Feature of commitment</i>	<i>Conversion factor (%)</i>
original maturity is more than 1 year	50
original maturity is less than or equal to 1 year	20
cancels automatically when the creditworthiness of the counterparty deteriorates or which can be cancelled unconditionally at any time without prior notice. In order for a zero per cent CCF to be applied for unconditionally cancellable commitments, it must be able to be demonstrated that the financial condition of the obligor is actively monitored and that the internal control system is such that upon evidence of material deterioration in the credit quality of the obligor, the facility could, and usually would, be cancelled.	0

- (a) Commitments to provide off-balance sheet facilities should be assigned the lower of the two applicable credit conversion factors.
- (b) The risk weight for the other types of commitments, to which subsection (c) applies, is the risk weight for the counterparty to the transaction
- (c) CCFs may be applied to the lower of the value of the unused committed credit line and the value that reflects of any constraining factor on the availability of the facility, such as the existence of a ceiling on the potential lending amount that is related to an obligor's reported cash flow or its external credit rating. If the lower value is used, there must be sufficient line monitoring and management procedures in place to support that.

4.73 **Credit conversion factors for market-related contracts**

Sections 4.74 to 4.80 set out the methodology for calculating the credit equivalent amount for market related contracts not covered by a bilateral netting agreement and the methodology to be used for market related contracts that are covered by a bilateral netting agreement.

4.74 **Calculation of credit equivalent amounts for over-the-counter derivative contracts**

The credit equivalent exposure amount for an over-the-counter derivative contract is calculated by marking it to its current market value and adding on an amount for potential future risk.

- (a) The credit equivalent exposure amount for a contract is calculated under the formulae:

$$\text{credit equivalent amount} = \text{current exposure amount} + \text{potential future exposure amount}$$

$$\text{potential future exposure amount} = \text{exposure amount} \times \text{future risk factor}$$

- (i) “current exposure amount” is the greater of—
- (A) zero; and
- (B) the current marked-to-market replacement cost for the contract.
- (ii) “exposure amount” is the effective notional principal amount of the contract. This is the stated notional principal amount unless the stated notional principal amount is leveraged or enhanced by the structure of the transaction. For example a stated notional amount of \$1 million with payments based on an internal rate of two times the bank bill rate would have an effective notional amount of \$2 million.
- (iii) “future risk factor” is the conversion factor for the potential future credit exposure over the remaining life of the contract under sections 4.75 – 4.80.
- (b) Notwithstanding subsection (a), for an over-the-counter derivative contract that is a single currency floating-to-floating interest rate swap contract, the credit equivalent amount is the current exposure amount in subsection (a)(i)

4.75 **Future risk adjustments for over-the-counter derivative contracts**

The conversion factor for an exposure that arises from:

- (a) a derivative contract traded over-the-counter;
- (b) bilaterally netted forward transactions.

is the factor that corresponds to the type and residual maturity of the contracts that give rise to the exposure, as set out in table 4.8.

Table 4.8

Conversion factors

<i>Type of contract</i>	<i>Conversion factor (%) for an exposure with a residual maturity:</i>		
	<i>less than or equal to 1 year</i>	<i>more than 1 year and less than or equal to 5 years</i>	<i>more than 5 years</i>
exchange rate contract	1	5	7.5
interest rate contract	0	0.5	1.5
equity contract	6	8	10
precious metal contract	7	7	8
other commodity contract	10	12	15

4.76 The conversion factor for contracts with multiple exchanges of principal is the factor in table 4.8 multiplied by the number of remaining payments in the contract.

4.77 For contracts that are structured to settle outstanding exposure on specified payment dates and where the terms are reset such that the market value of the contract is zero on these specified dates, the residual maturity is the time until the next reset date.

4.78 **Future risk adjustments for credit derivative contracts**

The conversion factor for an exposure arising from a single name credit derivative is as set out in table 4.9.

Table 4.9

Conversion factors

<i>Type of transaction</i>		<i>Conversion factor (%) for a transaction including:</i>	
		<i>a qualifying reference obligation</i>	<i>a non-qualifying reference obligation</i>
Total return swap	Buy	5	10
	Sell	5	10
Credit default swap	Buy	5	10
	Sell	see section (c) of this section	

- 4.79 The credit conversion factor for an off-balance sheet exposure arising from selling a credit default swap is the factor that corresponds to the conditions for the transaction in table 4.10.

Table 4.10

Credit conversion factors for selling credit default swaps

<i>Conditions for credit default swap transaction</i>	<i>Conversion factor (%) for a transaction including:</i>	
	<i>a qualifying reference obligation</i>	<i>a non-qualifying reference obligation</i>
when a credit default swap transaction is subject to close-out upon the insolvency of the protection buyer while the reference entity is still solvent	5	10
other credit default swap transactions	0	0

- 4.80 The exposure amount of a credit default swap transaction that has a credit conversion factor greater than zero under table 4.10 is limited to the amount of any unpaid premium.

4.81 Bilateral netting of market-related contracts

When calculating current exposures for bilaterally netted transactions, claims arising from forwards, swaps, options and similar derivative contracts may be netted when those claims are subject to a legally valid form of bilateral netting contract, other than a payments netting contract, if the following conditions are met.

- (a) The bilateral netting agreement or contract with the counterparty must be in writing.
- (b) The agreement must create a single legal obligation in relation to the counterparty for all individual contracts able to be netted under the agreement.
- (c) Should the counterparty not meet the terms of the agreement due to a default, insolvency, bankruptcy, statutory management, liquidation, voluntary administration or similar circumstance, the agreement must ensure that there is an exposure that is either a single claim to receive or a single obligation to pay only the net amount that results from the sum of the positive and negative mark-to-market values of the individual contracts covered by the agreement.
- (d) Written and reasoned legal opinions must be held that conclude with a high degree of certainty that, in the event of a legal challenge, the exposure under the agreement would be found to be the net amount under the laws of all relevant jurisdictions including:
 - (i) the law of the jurisdiction in which the counterparty is incorporated or chartered and if a foreign branch of the counterparty is involved, the law of the jurisdiction in which the branch is located;
 - (ii) the law that governs the individual transactions covered by the agreement; and
 - (iii) the law that governs any contract or agreement necessary to effect the bilateral netting agreement.
- (e) Procedures must be in place to ensure that the legal characteristics of netting arrangements are kept under review in the light of possible changes to relevant laws.
- (f) The agreement must not contain walk-away clauses which permit the non-defaulting party to make only limited or no payment to the estate of the defaulter, even if the defaulter is a net creditor under the agreement.
- (g) The credit equivalent exposure amount for bilaterally netted forward transactions is calculated as the sum of the net mark-to-market replacement cost, if positive, plus an add-on based on the notional underlying principal. The add-on for netted transactions is A_{Net} where:

$$A_{\text{Net}} = 0.4 \times A_{\text{Gross}} + 0.6 \times \text{NGR} \times A_{\text{Gross}}$$

A_{Gross} = the sum of the individual add-on factors of all transactions subject to the bilateral netting agreement, calculated using the conversion factors set out in Table 4.9.

NGR = the ratio of net current replacement cost to gross current replacement cost.

4.82 **Bilateral netting for contracts with same currency and maturity**

For forward foreign exchange contracts and other similar contracts the notional principal for the purposes of calculating the potential future credit exposure to a netting counterparty is the amount of net receipts that fall due on a value date, in a currency. This applies where such contracts:

- (a) are denominated in the same currency; and
- (b) mature on the same date; and
- (c) have a notional principal that is equivalent to their cash flows.

Meanings of terms used in FIRB approach for off-balance sheet and market related contracts

4.83 This section defines certain terms used in Sub-part 4B above, as follows:

- (a) “Asset sale with recourse” means an arrangement whereby loans or other exposures are sold to a third party, but the seller retains an obligation to assume the credit risk on the exposure under certain prescribed circumstances e.g. a deterioration in the value or credit quality of the exposure.
- (b) “Commitment with certain draw down” means an agreement to purchase exposures or acquire claims which are certain to be drawn down at a future date, and includes:
 - (i) A forward exposure purchase;
 - (ii) A partly paid-up share or security;
 - (iii) A forward deposit.
- (c) “Commodity”:
 (i) means something that is traded; and

- (ii) includes—
- precious metals
 - base metals
 - non-precious metals
 - energy
 - agricultural exposures
 - other physical things; and
- (iii) excludes gold.
- (d) “Credit derivative contract” means a contract entered into by 2 parties under standard ISDA credit derivative documentation with the intention to transfer credit risk in relation to a reference obligation from one party (the protection buyer) to the other party (the protection seller) and includes a related derivative contract.
- (e) “Credit default swap” means a credit derivative contract under which the protection buyer pays a premium to the protection seller in return for compensation in the event of a default (or similar credit event) by a reference entity.
- (f) “Derivative contract” means a financial instrument which is valued on the basis of the value of an underlying exposure; and which includes:
- (i) a commodity contract;
 - (ii) an exchange rate contract;
 - (iii) an equity contract;
 - (iv) an interest rate contract;
 - (v) a credit derivative contract; and
 - (vi) a related derivative contract.
- (g) “Direct credit substitute” means an off-balance sheet exposure that has a risk of loss that is equivalent to a direct claim on the counterparty and includes:
- (i) bills of exchange;
 - (ii) guarantees of financial obligations;
 - (iii) standby letters of credit;
 - (iv) risk participations.

- (h) “Equity contract” means a contract which is valued on the basis of the value of underlying equities or equity indices and includes related derivative contracts.
- (i) “Exchange rate contract”
- (i) means:
- (A) a forward foreign exchange contract, unless subsection (i)(iii) applies;
- (B) a cross-currency interest rate swap contract;
- (C) a currency option contract; or
- (D) a similar derivative contract:
- (ii) includes a related derivative contract which is valued on the basis of the value of gold.
- (iii) excludes:
- a contract that has an original maturity which is less than or equal to 14 calendar days, unless subsection (i)(ii) applies;
 - a forward exchange rate contract entered into as part of a swap deposit arrangement.
- (j) “Interest rate contract” means:
- (i) a single-currency forward rate contract;
- (ii) interest rate swap contract;
- (iii) interest rate option contract; or
- (iv) a similar derivative contract.
- (k) “Note issuance facility” or “revolving underwriting facility” means an arrangement whereby a borrower may drawdown funds up to a prescribed limit over a predefined period by making repeated note issues to the market, and where, if the issue is not fully taken up by the market, the unplaced amount is to be taken up or funds made available by the facility provider.
- (l) “Other commodity contract” means a commodity contract, which is valued on the basis of the value of a commodity other than a precious metal, and includes related derivative contracts.
- (m) “Over-the-counter transaction” or “contract traded over-the-counter”:
- (i) means a transaction or contract that is not;
- traded on an exchange; and

- subject to daily re-margining requirements; and
- (ii) includes:
- an exchange rate contract;
 - an interest rate contract;
 - an equity contract;
 - a precious metal contract;
 - another commodity contract.
- (n) “Placement of forward deposit” means an agreement to place a deposit with another party at an agreed rate of interest on a predetermined future date
- (o) “Precious metal” includes silver, platinum and palladium but excludes gold.
- (p) “Precious metal contract” means a commodity contract which is valued on the basis of the value of a precious metal.
- (q) “Related derivative contract” means a derivative contract that is—
- (i) a forward contract;
 - (ii) a swap contract;
 - (iii) an option contract; or
 - (iv) a similar contract.
- (r) “Repo-style transaction” means a transaction in which a person agrees—
- (i) a repurchase transaction: to sell a security to a counterparty for an amount of money and repurchase the security from the counterparty, at an agreed price, on an agreed future date;
 - (ii) a reverse repurchase transaction: to buy a security from a counterparty for an amount of money and resell the security at an agreed price on an agreed future date to the counterparty;
 - (iii) a securities lending transaction: to lend a security to a counterparty and receive an amount of money or another security from the counterparty in exchange as collateral; or
 - (iv) a securities borrowing transaction: to borrow a security from a counterparty and provide an amount of money or other securities to the counterparty in exchange as collateral.
- (s) “Swap deposit arrangement” means an arrangement under which, simultaneously:
- (i) a party sells foreign currency at the spot rate against another currency to a counterparty; and

- (ii) the counterparty deposits the foreign currency with the selling party and enters into a forward exchange rate contract with the party to sell the foreign currency back to the party against another currency, at a specified exchange rate, on a future date.
- (t) “Total return swap” means a credit derivative contract under which a protection buyer, during the term of the contract:
 - (i) pays a protection seller all cash flows arising from a reference obligation together with any appreciation in the market value of the reference obligation; and
 - (ii) receives, in return, a spread over a specified index together with any depreciation in the value of the reference obligation.
- (u) “Performance-related contingent item”:
 - (i) means an exposure involving an irrevocable obligation to pay a third party in the event that a counterparty fails to fulfill or perform a contractual non-monetary obligation such as delivery of goods by a specified date; and
 - (ii) includes:
 - performance bonds;
 - bid bonds;
 - warranties and indemnities;
 - performance related standby letters of credit;
 - other guarantees that support obligations relating to a particular transaction.
- (v) “Trade-related contingent item” means a contingent liability arising from trade-related obligations which are secured against an underlying shipment of goods. This includes documentary letters of credit issued, acceptances on trade bills, shipping guarantees issued and any other trade-related contingencies.

AIRB approach

4.84 The requirements for estimating **EAD** under the **AIRB** approach are the same as under the **FIRB** approach, as set out in sections 4.65 to 4.83 above, except that, subject to the minimum requirements specified in sections 4.153 to 4.162, and to approval from the Reserve Bank, own internal estimates of CCFs may be used across the different product types identified in Table 4.6, provided that those products subject in those sections to a 100% CCF are given a 100% CCF.

Credit risk components – effective maturity estimates

FIRB approach

- 4.85 Under the FIRB approach for corporate, sovereign and bank exposures, effective maturity (M) will be 2.5 years except for repo-style transactions where the effective maturity will be 6 months.

AIRB approach

- 4.86 Except as noted in section 4.86A, under the **AIRB** approach in respect of credit risk for corporate, sovereign and bank exposures, the effective maturity (**M**) for each facility is to be measured as detailed in section 4.87.
- 4.86A Under the **AIRB** approach in respect of credit risk for farm lending exposures, the effective maturity (**M**) for each facility (including short-term exposures) is either 2.5 years, or the bank's own estimate of M measured as detailed in section 4.87 but subject to a minimum value of 2.5 years.
- 4.87 Except as noted in section 4.90, M is defined as the greater of one year and the remaining effective maturity in years as defined in section 4.88. In all cases, M is no greater than 5 years.
- 4.88 For an instrument subject to a specified cash flow schedule, remaining effective maturity (**M***) is defined as:

$$M^* = \frac{\sum_t t * CF_t}{\sum_t CF_t}$$

where

CF_t denotes the cash flows contractually payable by the obligor in period t and t is expressed in years (e.g. where a payment is due to be received in 18 months, $t = 1.5$).

- 4.89 If M^* for contracted payments cannot be calculated as detailed in section 4.88, a more conservative measure of M^* may be used, provided that it is not less than the maximum remaining time (in years) that the obligor is permitted to take to fully discharge its contractual obligations under the terms of the facility agreement.
- 4.90 For short-term exposures defined in section 4.91, the one-year floor for effective maturity detailed in section 4.87 shall be replaced by a one-day floor. This treatment applies to transactions that are not a part of ongoing financing of an obligor and includes financial market transactions and one-off short-term exposures that are transaction-oriented.
- 4.91 A one-day floor, as detailed in section 4.92, may be applied to the following short term exposures:
- (a) repo-style transactions and short-term loans and deposits;
 - (b) exposures arising from securities lending transactions;

- (c) short-term self-liquidating trade transactions (import and export letters of credit and similar transactions can be accounted for at their actual remaining maturity);
 - (d) exposures arising from settling securities purchases and sales, including overdrafts arising from failed securities settlements provided that such overdrafts do not continue for more than five consecutive business days;
 - (e) exposures arising from cash settlements by wire transfer, including overdrafts arising from failed transfers provided that such overdrafts do not continue for more than three consecutive business days; and
 - (f) exposures to banks arising from failed foreign exchange settlements.
- 4.92 The maturity of such transactions must be calculated as the greater of one day and the effective maturity as detailed in Section 4.87.
- 4.93 Where amounts have been drawn by an obligor under a committed facility and the maturity of the drawn amount is less than the maturity of the facility, the maturity of the facility must be used for the effective maturity estimate of the drawn amount (up to a maximum of 5 years).
- 4.94 When determining the effective maturity estimate for over-the-counter derivatives that are subject to a master netting agreement, the bank must use the weighted average maturity of the derivatives. In this case, the notional amount of each derivative transaction should be used for the purpose of determining the weighted maturity.
- 4.95 Over-the-counter derivative transactions, margin lending, repurchase agreements, reverse repurchase agreements and securities lending and borrowing transactions are exempt from the one-year maturity floor where they have an original maturity of less than one year and the relevant documentation contains daily re-margining clauses. The relevant documentation must also require daily revaluation and include allowances for impairment that allow for the prompt liquidation or setoff of collateral in the event of default or failure to re-margin. Where these transactions are subject to a master netting agreement, the weighted average maturity of the transactions should be used when determining the effective maturity estimate. In this case, the floor for over-the-counter derivatives and margin lending transactions is 10 business days and for repurchase/reverse repurchase agreements and securities lending and borrowing transactions, it is 5 business days. The notional amount of each transaction must be used in determining the weighted average maturity.
- 4.96 In addition to the transactions detailed in section 4.91 above, other short-term transactions with an original maturity of less than one year that are not part of an ongoing financing of an obligor may be exempt from the one-year maturity floor. A bank must have policies that are approved in writing by the Reserve Bank detailing the transactions where the one-day maturity floor is appropriate.
- 4.97 Where there is no explicit adjustment, the effective maturity (M) assigned to all exposures is 2.5 years, unless otherwise specified.

Recognition of guarantees and credit derivatives (in PDs and LGDs)

- 4.98 There are two approaches for the recognition of credit risk mitigation in the form of guarantees and credit derivatives under the IRB approach: an **FIRB** substitution approach where supervisory estimates of LGD are used, and an **AIRB** substitution approach where there is approval from the Reserve Bank to use own estimates of LGD.
- 4.99 Under either of these two substitution approaches, credit risk mitigation in the form of guarantees and credit derivatives must not result in an adjusted risk-weight that is less than that of a comparable, direct exposure to the guarantor or credit protection provider.
- 4.100 Criteria for adjusting PD and, where relevant, LGD estimates must be documented and reflect the impact of guarantees and credit derivatives under the substitution approaches. The adjustment criteria must be plausible and intuitive and address the guarantor or credit protection provider's ability and willingness to perform under the guarantee or credit derivative. The adjustment criteria must also address the likely timing of any payments and the degree to which the guarantor or credit protection provider's ability to perform under the guarantee or credit derivative is correlated with the obligor's ability to repay. Adjustment criteria must also consider the extent to which residual risks remain. In adjusting PD and, where relevant, LGD estimates all relevant material information must be taken into account.
- 4.101 Where there is a currency mismatch between the underlying obligation and the credit protection provided by a guarantee or credit derivative, the amount of the exposure covered by the guarantee or credit derivative must be adjusted according to the requirements detailed in section 4.109 – 4.116 below (in the case of guarantees) and section 4.117 – 4.128 below (in the case of credit derivatives).
- 4.102 Credit protection need not be recognised if doing so would result in a higher capital requirement.
- 4.103 In calculating the capital requirement for covered exposures (or that portion thereof), the effective maturity estimate must be the same as the effective maturity of the exposure as if it were not covered.
- 4.104 Under the foundation and advanced IRB substitution approaches, the same PD, LGD and EAD estimates must be used for calculating EL for exposures (or that portion thereof) covered by eligible guarantees and credit derivatives as used for calculating the capital requirement for UL.

FIRB approach

- 4.105 To receive recognition of guarantees and credit derivatives under the FIRB substitution approach, the operational and other requirements detailed in section 4.110 (in the case of guarantees) and sections 4.117 to 4.119 (in the case of credit derivatives) must be met.

- 4.106 The range of eligible guarantors and credit protection providers under the FIRB substitution approach is as detailed in section 4.109 below.
- 4.107 Eligible guarantees and credit derivatives are recognised under the FIRB substitution approach as follows:
- (a) for the covered portion of the exposure, a risk-weight may be derived by using the PD appropriate to the guarantor or credit protection provider's obligor grade (subject to the floor detailed in section 2) or some grade between that of the underlying obligor and the guarantor or credit protection provider if the bank deems that full substitution is not warranted. In this case, the capital charge will be based on the risk-weight function appropriate to the guarantor or credit protection provider. The bank may, in respect of the covered portion, replace the LGD of the underlying transaction with the LGD applicable to the guarantee or credit derivative taking into account its seniority and any eligible collateral; and
 - (b) the uncovered portion of the exposure is assigned a risk-weight that is calculated in the same manner as a direct exposure to the underlying obligor.
- 4.108 However, credit risk mitigation in the form of guarantees and credit derivatives must not reflect the effect of double default. To the extent that the credit risk mitigation is recognised, the adjusted capital charge must not be less than that of a comparable, direct exposure to the protection provider.

Eligible Guarantees

- 4.109 Only guarantees provided by the following are recognised:
- (a) sovereigns and central banks;
 - (b) local authorities (as defined for the purposes of the Local Government (Rating) Act 2002);
 - (c) multilateral development banks or other international organisations;
 - (d) banks;
 - (e) corporates with a rating grade of 1 or 2 (as set out in Table 4.2 and Table 4.3).
- 4.110 **Minimum requirements for guarantees**
- Guarantees must meet the following requirements to qualify for use as credit risk mitigants.
- (aa) The guarantee must be issued by a guarantor or protection provider who is not a connected person of the bank. Connected person is defined in accordance with the Connected Exposures Policy BS8.

- (a) The guarantees must be actually posted and/or provided and therefore legally enforceable. A commitment to provide a guarantee or credit derivative is not recognised as an eligible credit risk mitigation technique under the FIRB approach.
- (b) The guarantee must represent a direct claim on the protection provider and must be explicitly referenced to specific exposures or a pool of exposures so that the extent of the cover is clearly defined and incontrovertible.
- (c) The guarantee must cover all types of payment the obligor is required to make under the documentation including interest, margin payments etc.
- (d) The guarantee must be irrevocable. There must be no clause that would allow the protection provider to cancel cover unilaterally or that would increase the effective cost of cover as a result of deteriorating credit quality in the hedged exposure.
- (e) The guarantee must be unconditional; there must be no provisions in the contract that could prevent the protection provider from being obliged to make immediate payment in the event that the original counterparty fails to make payments due.
- (f) On the qualifying default of, or non-payment by the counterparty, any monies outstanding under the documentation can be pursued immediately, without the need for legal action to be taken. The guarantor may assume the future payment obligations of the counterparty covered by the guarantee or may make one lump sum payment.

4.111 **Proportional cover**³⁹

Where there is partial coverage of an exposure by a guarantee and the covered and uncovered portions are of equal seniority (i.e. losses are shared with the protection provider on a pro-rata basis), capital relief is afforded on a proportional basis. This means that the covered portion of the exposure receives the treatment applicable to eligible guarantees or credit derivatives with the remainder treated as uncovered.

4.112 **Tranched cover**

Where there is partial coverage of an exposure by a guarantee and the lender can only claim on the guarantee if losses exceed the uncovered part of the claim, the exposure must be treated as being to the underlying counterparty.

Guarantees that prescribe conditions under which the guarantor shall not be obliged to perform (conditional guarantees) may not be recognised under the FIRB substitution approach.

³⁹ The method and scope of recognition of guarantees corresponds with the comprehensive approach in BS2A: *Capital Adequacy Framework (Standardised Approach)*. The simplified approach provided for in that document is not available to banks using IRB approaches.

4.113 **Currency mismatch**

Where a guarantee is denominated in a different currency from that in which the exposure is denominated, the amount of the exposure deemed to be protected must be reduced by the application of an adjustment (or “haircut”).

G_A is the amount of the exposure deemed to be protected;

where:

$$G_A = G \times (1 - H_{fx})$$

G = nominal amount of the guarantee

H_{fx} = The haircut for a currency mismatch is 8% assuming daily marking to market. Where marking to market is less frequent the haircut must be scaled up according to the frequency of revaluation (see sections 4.39 and 4.40 for details).

4.114 **Maturity mismatch**

A maturity mismatch exists where the residual maturity of a guarantee is less than the effective maturity of the underlying exposure.

Where there is a maturity mismatch, the guarantee will only be recognised when the residual maturity of the guarantee is greater than or equal to 12 months. Where the residual maturity of the guarantee is less than 12 months, the guarantee will not be eligible unless the term of the guarantee is equal to the residual maturity of the underlying exposure.

In all cases, guarantees with maturity mismatches must not be recognised when they have a residual maturity of three months or less.

Where the residual maturity of the guarantee is less than the maturity of the exposure a maturity mismatch adjustment will be required for the purposes of calculating risk weighted exposures (see section 4.116 below).

4.115 **Effective maturity**

The effective maturity of the underlying exposure is the longest possible remaining time until the counterparty is scheduled to fulfill its obligation, taking into account any grace period.

The effective maturity of the guarantee is the shortest possible time remaining until the guarantee expires, taking into account any clause in the documentation supporting the transaction that may reduce the term of the guarantee. Where the guarantor has the capacity to reduce the term of the guarantee, the maturity will always be the first date where the guarantor can exercise its discretion. Where the beneficiary of the guarantee has the discretion to reduce the term of the guarantee, and the terms of the guarantee contain a positive incentive for it to exercise its discretion before contractual maturity, the remaining time to the first date when the discretion can be exercised will be deemed to be the effective maturity.

4.116 **Adjustment for maturity mismatch**

Where there is a maturity mismatch between a guarantee and the exposure covered by the guarantee, the following adjustment must be made:

$$P_A = P \times (t-0.25)/(T-0.25)$$

where:

P_A = value of the guarantee adjusted for maturity mismatch

P = guarantee amount adjusted for any haircuts

T = min (T, residual maturity of the guarantee) expressed in years

t = min (5, residual maturity of the exposure) expressed in years

Credit derivatives

4.117 Subject to the requirements in section 4.118, the following credit derivatives are recognised as having the same effect as a qualifying guarantee:

- (a) Single name credit default and total return swaps that provide credit protection equivalent to guarantees. However, where a bank buys credit protection through a total return swap and records the net value of the exposure that is protected (either through reductions in fair value or by an addition to reserves), the credit protection will not be recognised.
- (b) Cash funded credit linked notes issued by the bank against exposures in the banking book which fulfill the criteria for credit derivatives are treated as cash collateralised transactions.

4.118 In order to be recognised for credit risk mitigation purposes the credit derivative contract must meet the following requirements:

- (a) It must represent a direct claim on the protection provider and must be explicitly referenced to specific exposures or a pool of exposures so that the extent of cover is clearly defined and incontrovertible.
- (ab) The protection provider must not be a connected person of the bank. Connected person is defined in accordance with the Connected Exposures Policy BS8.
- (b) It must be irrevocable. There must be no clause that would allow the protection provider to cancel cover unilaterally or that would increase the effective cost of cover as a result of deteriorating credit quality in the hedged exposure.
- (c) It must be unconditional. There should be no clause in the contract that could prevent the protection provider from being obliged to pay out immediately in the event that the original counterparty fails to make the payments due.

- (d) There must be sufficient credit risk transfer under the credit derivative contract. At a minimum this requires that credit events under the terms of the credit derivative contract cover:
- (i) Failure to pay an amount due under the terms of the underlying exposure that is in effect at the time of such failure (with a grace period that is closely in line with the grace period in the underlying obligation).
 - (ii) The insolvency, bankruptcy, statutory management, liquidation, voluntary administration or similar circumstance of the obligor of the underlying exposure; the inability or failure of the obligor to pay its debts; the obligor's admission in writing that it is unable to pay its debts as those debts become due; or analogous events.
 - (iii) The restructuring of the underlying obligation including forgiveness or postponement of principal, interest, or fees that results in a credit loss event (ie charge off, allowance for impairment or similar debit to the profit and loss account). However, where the restructuring of the underlying exposure is not included within the terms of the contract but all other requirements for credit risk transfer are met, 60% of the amount of credit protection purchased or 60% of the underlying exposure, whichever is the lesser, may be recognised for capital adequacy purposes.
- (e) The credit derivative must not terminate prior to the expiration of any grace period required for a default on the underlying obligation to occur as a result of a failure to pay.

4.119 **Exposure mismatch**

An exposure mismatch occurs when a bank has purchased credit protection using a credit derivative and the reference exposure specified in the credit derivative contract for the purpose of determining the occurrence of a credit event is different to the underlying exposure which is protected by the credit derivative. An exposure mismatch for credit risk mitigation purposes is allowed provided:

- (a) The reference exposure ranks *pari passu* or more junior in seniority of claim relative to the underlying exposure.
- (b) The underlying exposure and reference exposure are obligations of the same legal entity or the underlying exposure is an obligation of an entity that is unconditionally and irrevocably guaranteed by the reference entity to the credit derivative contract and legally enforceable cross-default or cross acceleration clauses are in place.

4.120 **Credit event payments**

Credit derivatives allowing for cash settlement are recognised for credit risk mitigation purposes only if the bank has a robust valuation process to estimate loss

reliably. There must be a clearly specified period for obtaining post-credit event valuations of the underlying obligation.

If the reference obligation specified in the credit derivative for the purposes of cash settlement is different than the underlying obligation, the resulting exposure mismatch is permissible only if:

- (a) The reference obligation ranks *pari passu* with or is junior to the underlying obligation; and
- (b) The underlying obligation and reference obligation share the same obligor (ie the same legal entity) and legally enforceable cross-default or cross-acceleration clauses are in place.

4.121 **Maturity of the underlying exposure**

The maturity of the underlying exposure is the longest possible remaining time before the obligor is scheduled to fulfill its obligation, taking into account any applicable grace period.

4.122 **Maturity of the credit derivative**

The maturity of the credit derivative is the shortest possible effective maturity taking into account any clause in the contract that may reduce its term. For this purpose any clauses that give the protection seller the capacity to reduce the term of the credit derivative and those that give the purchaser at origination of the contract a discretion and incentive to reduce its term must both be taken into account.

For credit risk mitigation purposes, credit derivatives, with the exception of cash-funded credit-linked notes, are treated in a similar manner to guarantees. This means that where an underlying exposure is protected by a credit derivative from an eligible protection seller, the portion of the claim that is protected by the credit derivative may be weighted according to the risk weight appropriate to the protection seller. The unprotected portion of the exposure must be risk weighted according to the risk weight of the counterparty.

4.123 **Eligible protection sellers**

Credit derivatives may be recognised under this framework if they are provided by eligible guarantors (see section 4.109 and 4.110).

4.124 **Tranched cover**

Where there is partial coverage of an underlying exposure by a credit derivative and the protected portion ranks after the unprotected portion, no credit risk mitigation is recognised under this framework.

4.125 **Credit default and total rate of return swaps**

Where credit protection is obtained using a credit default swap referenced to a single reference entity or a total rate of return swap, that portion of the underlying exposure protected by the credit derivative may be risk weighted according to the risk weight of the protection seller.

4.126 **Cash funded credit linked notes**

Where credit protection is obtained using a credit linked note that is funded by cash, the exposure must be treated as a cash collateralised transaction.

4.127 **Maturity mismatches**

A maturity mismatch exists where the residual maturity of a credit derivative contract is less than the residual maturity of the underlying exposure.

Where there is a maturity mismatch, a credit derivative is only recognised for credit risk mitigation purposes when the original maturity of the credit derivative is greater than or equal to 12 months. Credit derivatives with an original maturity of less than 12 months will not be eligible unless the term of the credit derivative exactly matches the maturity of the underlying exposure. In all cases where there is a maturity mismatch a credit derivative will not be eligible for credit risk mitigation purposes when the term has a residual maturity of 3 months or less.

Where there is a maturity mismatch and the credit derivative has an original maturity of 12 months or more, the amount of credit protection must be adjusted to reflect the maturity mismatch using the following formula:

$$P_a = P \times (t-0.25)/(T-0.25)$$

Where:

P_a = value of the amount of credit protection adjusted for maturity mismatch

P = amount of credit protection adjusted for any haircuts (in which case, $P = G_A$ – see section 4.113)

t = min(T , residual maturity of the credit derivative) expressed in years

T = min (5, residual maturity of the underlying exposure) expressed in years

4.128 **Currency mismatch**

A currency mismatch exists when credit protection provided by a credit derivative is denominated in a different currency to the underlying exposure. In this case the amount of the exposure deemed to be protected will be reduced by the application of an adjustment or haircut as follows:

G_A is the amount of the exposure deemed to be protected;

where:

$$G_A = G \times (1 - H_{fx})$$

G = nominal amount of the credit derivative

H_{fx} = haircut appropriate for the currency mismatch between the credit derivative and the underlying exposure.

The haircut for the currency mismatch is the same as that applied to collateral in the comprehensive approach to credit risk mitigation – i.e. 8% assuming daily marking to market. Haircuts must be scaled up depending on actual frequency of revaluation of the currency mismatch if daily marking to market does not occur.

AIRB approach

4.129 There are no in-principle restrictions as to the types of guarantors or credit protection providers that may be recognised under the AIRB substitution approach other than a restriction on the recognition of connected persons. The criteria for the types of guarantors and credit protection providers that are recognised for minimum capital purposes must be clearly documented.

4.130 Under the AIRB substitution approach, guarantees and credit derivatives must be:

- (a) in writing and non-cancelable on the part of the guarantor or credit protection provider;
- (b) in force until the debt is satisfied in full (to the extent of the amount and tenor of the guarantee or credit derivative);
- (c) legally enforceable against the guarantor or credit protection provider in a jurisdiction where that party has assets to attach and enforce a judgement;and
- (d) provided by a party who is not a connected person (as defined in the Connected Exposures Policy BS8).

4.131 Under the AIRB substitution approach the risk-mitigating effect of guarantees and credit derivatives may be reflected by either adjusting PD or LGD estimates. Whether adjustments are made through PD or LGD, they must be made in a consistent manner for a given type of guarantee or credit derivative. Where adjustments are made to PD estimates, the approach to determining the capital charge for the covered and uncovered portions, as detailed in section 4.111, must be applied.

4.132 Additional minimum requirements for assessing the effect of guarantees under the advanced IRB substitution approach

Guarantees prescribing conditions under which the guarantor may not be obliged to perform (conditional guarantees) may be recognised if the bank can demonstrate that the criteria for assigning adjusted PD or LGD estimates adequately address any potential reduction in the credit risk mitigation effect.

4.133 **Additional minimum requirements for assessing the effect of credit derivatives under the advanced IRB substitution approach**

The criteria used for assigning adjusted PD or LGD estimates for exposures covered by credit derivatives must require that the exposure on which the protection is based (the reference exposure) cannot be different from the underlying exposure unless the conditions detailed in section 4.119 are met. Where a credit derivative does not cover the restructuring of the underlying exposure, partial recognition is allowed as detailed in section 4.120.

The criteria used for assigning adjusted PD or LGD estimates must address the payout structure of the credit derivative and conservatively assess the impact this has on the level and timing of recoveries.

The extent to which other forms of residual risk remain must be recognised in the estimated capital charge.

Risk-weighted assets for the corporate, sovereign and bank IRB exposure classes

Formula for the derivation of risk-weighted assets

4.134 Except where (and to the extent that) the supervisory slotting approach applies to SL exposures, the derivation of risk-weighted assets in respect of UL for the corporate, sovereign and bank IRB exposure classes (as defined respectively in sections 4.4, 4.5 and 4.6) is dependent on the assigned estimates of PD, LGD⁴⁰, EAD and M for a given exposure.

4.135 In calculating risk-weighted assets, PD and LGD are expressed as decimals (e.g. one per cent = 0.01) and EAD is expressed in New Zealand dollars.

4.136 For non-defaulted corporate, sovereign and bank exposures, the formula for calculating the capital requirement (**K**) is:^{41,42}

Capital requirement⁴³ (**K**) =

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

⁴⁰ In the case of eligible collateral under the FIRB approach, effective LGD (**LGD***)

⁴¹ ln denotes the natural logarithm.

⁴² 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). G(z) denotes the inverse cumulative distribution function for a standard normal random variable (i.e. the value of x such that N(x) = z). The normal cumulative distribution function and the inverse of the normal cumulative distribution function are, for example, available in Excel as the functions NORMSDIST and NORMSINV.

⁴³ If this calculation results in a negative capital charge for a sovereign exposure, a bank must apply a zero capital charge for that exposure.

$$\text{Correlation (R)} = \left[0.12 \times \left(\frac{1 - e^{-50 \times PD}}{1 - e^{-50}} \right) \right] + \left[0.24 \times \left(1 - \left(\frac{1 - e^{-50 \times PD}}{1 - e^{-50}} \right) \right) \right]$$

$$\text{Adjustment (b)} = \left[0.11852 - (0.05478 \times \ln(PD)) \right]^2$$

4.137 The capital requirement (**K**) in respect of UL for defaulted exposures under the AIRB approach is equal to the greater of zero and the amount by which the product of own estimates of LGD (expressed in percentage terms) and EAD (expressed in dollar terms) exceeds the bank's best estimate of EL given current economic circumstances and the facility's status.

4.138 For both non-defaulted and defaulted exposures, risk-weighted assets for UL are calculated as $K \times 12.5 \times EAD$.

4.139 **Firm-size adjustment**

Under the IRB approach there is an adjustment to the calculation of risk-weighted assets in respect of obligors that form part of a consolidated corporate group that has reported consolidated annual sales of less than \$50 million.

The firm-size adjustment is made to the corporate risk-weight formula by substituting the following correlation formula (**R**) for that in section 4.136:

Correlation (**R**) =

$$\left[0.12 \times \frac{1 - e^{-50 \times PD}}{1 - e^{-50}} \right] + \left[0.24 \times \left(1 - \frac{1 - e^{-50 \times PD}}{1 - e^{-50}} \right) \right] - \left[0.04 \times \left(1 - \frac{S - 5}{45} \right) \right]$$

where:

S is expressed as total annual sales between \$5 million and \$50 million. For obligors with reported sales of less than \$5 million, S has a minimum value of \$5 million.

Total assets of the consolidated corporate group may be substituted for total sales in calculating the firm-size adjustment. Total assets may be used only when the total sales figure is not a meaningful indicator of firm size.

4.139A The firm-size adjustment set out in section 4.139 must not be applied to farm lending exposures (as defined in section 4.4c)

Supervisory slotting approach for specialised lending exposures

4.140 For specialised lending exposures (see subsection 4.4(a)), if the requirements to use the same IRB approach as used for general corporate exposures are not met, then the supervisory slotting approach must be used.

- 4.141 Where an IRB approval provides for the supervisory slotting approach to apply to project finance (**PF**), object finance (**OF**), commodities finance (**CF**) and/or income producing real estate (**IPRE**) exposures (as defined in sub-section 4.4(a)), internal obligor grades for those exposures must be mapped to five supervisory slotting categories. Each supervisory slotting category is associated with a specific risk-weight.
- 4.142 The criteria upon which this mapping process must be based are provided in Annex 1.
- 4.143 Internal obligor grades must be mapped to supervisory slotting categories for SL using the slotting criteria provided in the table below. These categories broadly correspond to the external credit assessments in the following table (using the Standard & Poor's rating scale). The risk weights for UL associated with each supervisory slotting category are:⁴⁴

Supervisory category	Strong	Good	Satisfactory	Weak	Default
Risk-weight	70%	90%	115%	250%	0%
External rating equivalent	BBB- or better	BB+ or BB	BB- or B+	B to C-	N/A

Retail exposures

- 4.144 This Part sets out the method of calculating the unexpected loss (**UL**) minimum capital requirement for the retail internal ratings-based (**IRB**) exposure class. It first sets out the credit risk components that serve as inputs into the IRB risk-weight functions for the retail IRB exposure class. The following sections provide the IRB risk-weight functions for the retail IRB exposure class that determine the capital requirement for UL for those exposures.
- 4.145 The method of calculating expected losses (**EL**) for the retail IRB exposure class, and for determining the difference between that measure and eligible allowances for impairment, is detailed in sections 4.207 to 4.216.
- 4.146 For the retail IRB exposure class, own estimates must be provided of probability of default (**PD**), loss given default (**LGD**) and exposure at default (**EAD**) for each

⁴⁴ The credit risk-weighted asset amount for these exposures must be calculated. For the on-balance sheet component, the amount that is multiplied by the relevant risk-weight is the book value of the exposure gross of any individual credit impairment allowances. Off-balance sheet exposures are converted to on-balance sheet equivalents using the credit conversion factors detailed in sections 4.72 to 4.80. The total amount of the on-balance sheet exposure and on-balance sheet equivalent of any off-balance sheet exposure is multiplied by the relevant risk-weight to determine the credit risk-weighted asset amount.

identified pool of retail exposures. There is no explicit maturity adjustment for the retail IRB exposure class.

Credit risk components – PD and LGD estimates

- 4.147 The minimum requirements for the derivation of PD and LGD estimates associated with each identified pool of retail exposures are detailed in Sub-part 4C.
- 4.148 The PD assigned to each pool of retail exposures is the greater of the long-run average one-year PD associated with the internal obligor grade to which the pool of retail exposures is assigned and 0.03 per cent.
- 4.149 A 100 per cent PD must be assigned to default grades (See sections 4.272 to 4.278 for the definition of default).
- 4.150 Own estimates of LGD may be used for retail exposures if approval has been given by the Reserve Bank. If Reserve Bank approval has not been obtained to use own estimates of LGD for exposures secured by residential mortgages, the minimum LGD requirements must be applied that correspond to different levels of LVR as set out in table 4.11.

Table 4.11

Minimum LGD for residential real estate exposures

LVR	LGD
90-100%	38.00%
80-89%	33.25%
70-79%	28.50%
60-69%	19.00%
Under 60%	10.00%

- 4.150A For the purposes of section 4.150, LVR (or loan to value ratio) is defined as the current loan balance as a percentage of the value of the security at the time the loan was originated. The current loan balance includes the EAD amount of any off-balance sheet exposures consistent with sections 4.155 to 4.158.

4.151 LGD estimates must be measured as a percentage of EAD.

Credit risk components – EAD estimates

4.152 Under the IRB approach, the EAD in respect of each exposure (both on- and off-balance sheet) is measured gross of allowances for impairment and partial write-offs.

Exposure measurement for on-balance sheet exposures

4.153 The EAD estimate on a drawn amount (i.e. an on-balance sheet exposure) must not be less than the contractual amount owed by the obligor at the time of default, nor should it be less than the sum of:

- (a) the amount by which the minimum capital requirement would be reduced if the exposure were fully written-off; and
- (b) any associated allowances for impairment and partial write-offs.

4.154 When the difference between the EAD estimate and the sum of sub-sections 4.53(a) and 4.153(b) above is positive, this amount is termed a discount. Such discounts must not be taken into account when calculating risk-weighted assets. Such discounts may be included in the measurement of total eligible allowances for impairment for the purpose of offsetting EL in calculating the minimum capital requirement.

On-balance sheet netting of a registered bank's loans to and deposits from a retail customer will be permitted where the following conditions are met.

- (a) There must be a well founded legal basis for concluding that the bilateral netting agreement is enforceable in each relevant jurisdiction regardless of whether the counterparty is insolvent or bankrupt.
 - (i) The bank must at all times be able to determine the loans and deposits that are subject to the bilateral netting agreement.
 - (ii) The bank must monitor and control its roll-off risks.
 - (iii) The bank must monitor and control the relevant exposure on a net basis.

- (iv) Loans are treated as exposures and deposits as cash collateral. The haircuts will be zero unless a currency mismatch exists, in which case standard supervisory haircuts will apply, scaled up if daily mark to market is not conducted.

Exposure measurement for off-balance sheet exposures except foreign exchange and interest rate derivatives

- 4.155 For off-balance sheet exposures, EAD is calculated as the notional amount of the exposure multiplied by a credit conversion factor (CCF) or in the case of an undrawn commitment, the undrawn amount multiplied by a CCF.
- 4.156 For off-balance sheet retail exposures, own estimates of CCFs may be used, subject to the minimum requirements being met.
- 4.157 For retail exposures with uncertain future drawdown such as credit cards, the history of, and expectations of, additional drawings prior to default must be taken into account in the overall calibration of loss estimates. Where CCFs for undrawn lines are not reflected in EAD estimates, the likelihood of additional drawings prior to default must be reflected in LGD estimates. Conversely, if the possibility of additional drawings is not incorporated in LGD estimates, it must be incorporated in EAD estimates.
- 4.158 Where the drawn balances of retail exposures are securitised and given off balance sheet treatment for capital adequacy purposes, regulatory capital must continue to be held against any undrawn balances related to the exposures using the IRB approach to credit risk.

Exposure measurement for foreign exchange and interest rate derivatives

- 4.159 Where foreign exchange and interest rate commitments exist within the retail IRB exposure class, own CCF estimates are not permitted. Instead, the CCFs detailed in sections 4.72 to 4.80 above must be used for those exposures.

Recognition of guarantees and credit derivatives

- 4.160 Subject to the minimum requirements detailed in sections 4.98 to 4.133, the risk-mitigating effect of guarantees and credit derivatives, either in support of an individual obligation or a pool of exposures, may be reflected through an adjustment to either PD or LGD. Whether adjustments are made to PD or LGD, they must be done in a consistent manner for a given type of guarantee or credit derivative.
- 4.161 Under either approach, credit risk mitigation in the form of guarantees and credit derivatives must not reflect the effect of double default. To the extent that credit risk mitigation is recognised, the adjusted risk-weight must not be less than that of a comparable, direct exposure to the protection provider.
- 4.162 Recognition of credit protection is not required if doing so would result in a higher capital requirement.

Risk-weighted assets for the retail IRB exposure class

4.163 There are separate IRB risk-weight functions for the three retail exposure sub-classes defined in Sub-part 4A, i.e. the residential mortgage exposure sub-class, the qualifying revolving retail exposure sub-class and the other retail exposure sub-class. Throughout this section, PD and LGD are measured as decimals and EAD is measured in New Zealand dollars.

Residential mortgage exposure sub-class

4.164 For non-defaulted exposures fully or partly secured⁴⁵ by residential mortgages as defined in section 4.7, the formula for calculating risk-weighted assets is⁴⁶:

Risk-weighted assets =

$$K \times 12.5 \times EAD$$

Capital requirement (**K**) =

$$LGD \times N \left[\left(\frac{1}{\sqrt{1-R}} \times G(PD) \right) + \sqrt{\left(\frac{R}{1-R} \right) \times G(0.999)} \right] - (PD \times LGD)$$

Correlation (**R**) =

0.15

Qualifying revolving retail (QRR) exposure sub-class

4.165 For non-defaulted QRR exposures as defined in section 4.7, the formula for calculating risk-weighted assets is⁴⁶:

Risk-weighted assets =

$$K \times 12.5 \times EAD$$

Capital requirement (**K**) =

$$LGD \times N \left[\left(\frac{1}{\sqrt{1-R}} \times G(PD) \right) + \sqrt{\left(\frac{R}{1-R} \right) \times G(0.999)} \right] - (PD \times LGD)$$

Correlation (**R**) =

0.04

⁴⁵ This means that the residential mortgage risk-weight function also applies to the unsecured portion of such residential mortgages.

⁴⁶ 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). G (z) denotes the inverse cumulative distribution function for a standard normal random variable (i.e. the value of x such that N(x) = z). The normal cumulative distribution function and the inverse of the normal cumulative distribution function are, for example, available in Excel as the functions NORMSDIST and NORMSINV.

Other retail exposure sub-class

- 4.166 For all other non-defaulted retail exposures as defined subsections 4.7(c),(d) and (e) the formula for calculating risk-weighted assets is⁴⁷:

Risk-weighted assets =

$$K \times 12.5 \times EAD$$

Capital requirement (**K**) =

$$LGD \times N \left[\left(\frac{1}{\sqrt{1-R}} \times G(PD) \right) + \sqrt{\left(\frac{R}{1-R} \right) \times G(0.999)} \right] - (PD \times LGD)$$

Correlation (**R**) =

$$\left[0.03 \times \frac{1 - e^{-35 \times PD}}{1 - e^{-35}} \right] + \left[0.16 \times \left(1 - \frac{1 - e^{-35 \times PD}}{1 - e^{-35}} \right) \right]$$

Capital requirement for defaulted retail exposures

- 4.167 The capital requirement (**K**) in respect of UL for defaulted retail exposures is equal to the greater of zero and the amount by which the product of own estimates of LGD (expressed in percentage terms) and EAD (expressed in dollar terms) exceeds the bank's best estimate of EL (expressed in dollar terms) given current economic circumstances and the facility's status.
- 4.168 For defaulted exposures, risk-weighted assets for UL are calculated as $K \times 12.5 \times EAD$.

Purchased receivables

- 4.169 This sub-part sets out the method for calculating the unexpected loss (UL) capital requirement for purchased receivables. For these exposures, there are capital charges for both credit risk and dilution risk.
- 4.170 The method of calculating expected losses (EL) for purchased receivables, and for determining the difference between that measure and eligible allowances for impairment, is detailed in sections 4.207 to 4.216.

The treatment of purchased receivables straddles two internal ratings-based (IRB) exposure classes:

- (a) purchased receivables falling within the retail IRB exposure class are pools of receivables that have been purchased where the underlying receivables meet the definition of retail exposures in [reference to categorisation of exposures]; and
- (b) purchased receivables falling within the corporate IRB exposure class are pools of receivables that have been purchased where the underlying receivables meet the definition of corporate exposures in [reference to categorisation of exposures].

Credit risk for purchased retail receivables

- 4.172 The calculation of the capital requirement for credit risk for purchased retail receivables is the same as that for the general retail IRB exposure class as detailed in sections 4.163 to 4.168.
- 4.173 When estimating probability of default (PD) and loss given default (LGD) for purchased retail receivables, external or internal reference data may be utilised. However, for each of the homogeneous risk buckets into which a pool is segmented these estimates must be determined on a stand-alone basis without regard to any assumption of recourse to or guarantees from the seller or other parties.
- 4.174 For purchased receivables belonging to a particular retail exposure sub-class (refer definitions in Section 4.7), the risk-weight for credit risk is based on the risk-weight function applicable to that exposure sub-class (refer sections 4.163 to 4.166 of Part 4). The qualification standards for the use of the relevant risk-weight function must be met. For example, if certain receivables purchased do not satisfy the criteria for the qualifying revolving retail exposure sub-class, the risk-weight function for other retail exposures must be used.
- 4.175 For hybrid pools containing receivables belonging to more than one retail exposure sub-class, if the exposures cannot be separated by type of retail exposure sub-class, the risk-weight function that produces the highest minimum capital requirement at each PD level must be applied.

Credit risk for purchased corporate receivables

- 4.176 Consistent with the general IRB treatment for corporate exposures, for purchased corporate receivables, the credit risk of individual corporate obligors within each pool of purchased corporate receivables is to be assessed as detailed in sections 4.134 to 4.143.
- 4.177 Alternatively, a top-down approach may be used in certain limited situations, provided the programme for purchased corporate receivables complies with the criteria for eligible receivables and the minimum operational requirements.
- 4.178 The use of the top-down approach for credit risk for purchased corporate receivables is limited to situations where it would be an undue burden to be subject to the minimum requirements for the IRB approach to corporate exposures that would otherwise apply. The approach is limited to corporate receivables that are purchased for inclusion in asset-backed securitisation structures.
- 4.179 The use of the top-down approach is subject to approval in writing from the Reserve Bank.
- 4.180 To be eligible for the top-down treatment, purchased corporate receivables must satisfy the following conditions:
- (a) the corporate receivables are purchased from unrelated, third-party sellers (i.e. there has been no involvement, direct or indirect, in originating the receivables);
 - (b) the receivables have been generated on an arms-length basis between the seller and the obligor. Inter-company accounts receivable and receivables subject to contra-accounts between firms that buy and sell amongst each other are ineligible⁴⁸;
 - (c) there is a claim on all proceeds from the pool of corporate receivables or a pro-rata interest in the proceeds commensurate with the purchasing bank's exposure to the pool; and
 - (d) the maximum size of an individual exposure in the pool of purchased corporate receivables must be less than \$100,000.
- 4.181 The existence of full or partial recourse to the seller does not automatically disqualify adoption of a top-down approach, as long as the cash flows from the purchased corporate receivables are the primary protection against credit risk.

⁴⁸ Contra-accounts involve a customer buying from and selling to the same firm. The risk is that debts may be settled through payments in kind rather than cash. Invoices between the companies may be offset against each other instead of being paid. This practice may defeat a security interest when challenged in court.

Top-down approach for credit risk for purchased corporate receivables

4.182 There are two top-down approaches for determining the capital requirement for credit risk for purchased corporate receivables: a foundation approach and an advanced approach.

4.183 The advanced approach is not available where the FIRB approach is used for general corporate IRB exposure class.

As described below, the precise calculation of risk weights for credit risk depends on the bank's ability to decompose EL into its PD and LGD components in a reliable manner. Banks can use external and internal data to estimate PDs and LGDs.

Under both the Foundation and Advanced top-down approaches, the bank must segment pools of purchased corporate receivables into homogenous buckets. The purchasing bank must estimate a pool's one-year EL for credit risk, expressed as a percentage of the exposure amount (this is the total EAD amount relating to all obligors in the given receivables pool.) The EL must be estimated for the receivables on a stand-alone basis (i.e. must not incorporate assumptions of recourse or guarantees from the seller or other parties). The treatment of recourse or guarantees covering credit risk (and/or dilution risk) is discussed separately, below.

4.184 Given this estimate of EL for default losses, under both the foundation and advanced approaches, the risk-weight for credit risk is determined using the risk-weight function for corporate exposures.⁴⁹

FIRB approach

4.185 If PD can be reliably estimated for the segmented pools of purchased corporate receivables, the risk weight may be determined using the FIRB approach for determining credit risk for corporate exposures, subject to the Reserve Bank's approval.

4.186 If the purchasing bank cannot reliably decompose EL into its PD and LGD components for the segmented pools of purchased corporate receivables, then the risk weight must be determined from the corporate risk-weight function using the following specifications.

- (a) An LGD of 45 per cent can be used if the segmented pools are exclusively senior claims on corporate borrowers. The PD estimate must then be obtained by dividing the expected long-run average loss rate by this 45 per cent LGD. EAD is calculated as the outstanding amount minus the capital charge for dilution prior to credit risk mitigation.
- (b) If the segmented pools are not exclusively senior claims to corporate borrowers, PD must be the bank's estimate of the expected long-run average loss rate. In this instance, LGD will be 100 per cent, and EAD is

⁴⁹ The firm-size adjustment, as defined in section 4.139, is the weighted average of individual exposures in the pool of purchased corporate receivables. If the information required to calculate the average size of the pool, the firm-size adjustment does not apply.

the amount outstanding for each segmented pool less the capital charge for dilution risk for that segmented pool prior to credit risk mitigation. For a revolving purchase facility, EAD is the sum of the current amount of receivables purchased plus 75 per cent of any undrawn purchase commitments less the capital charge for dilution risk prior to credit risk mitigation.

AIRB approach

4.187 Under the advanced approach, PD and LGD must be estimated for each of the homogeneous segmented pools of purchased corporate receivables.

4.188 If only one of either average PD or default weighted average LGD can reliably be estimated for each segmented pool, the other required credit risk component may be based on an estimate of the expected long-run average one-year loss rate of the segmented pool. On that basis, the bank may thus:

- (a) use its PD estimate to infer the LGD; or
- (b) use its LGD estimate to infer the PD.

The LGD must not be less than the long-run default-weighted average LGD.

The risk weight for the purchased receivables must be obtained by using the estimated PD and LGD as inputs in the risk-weight function for corporate exposures.

As with the foundation approach:

- (a) EAD must be estimated as the amount outstanding for each segmented pool less the capital charge for dilution risk for that segmented pool prior to credit risk mitigation; and
- (b) For a revolving purchase facility, the sum of the current amount of receivables purchased plus 75 per cent of any undrawn purchase commitments less the capital charge for dilution risk prior to credit risk mitigation (so that under the AIRB approach a bank must not use its internal EAD estimates for undrawn purchase commitments).

Effective maturity (**M**) for drawn amounts will equal the segmented pools' exposure-weighted average effective maturity. This same value of **M** will also be used for any undrawn amounts under a committed purchase facility, provided that facility contains effective covenants, early amortisation triggers or other features that protect against a significant deterioration in the quality of the future receivables it is required to purchase over the facility's term. In the absence of such protection, the **M** for undrawn amounts will be calculated as the sum of:

- (a) the longest-dated potential receivable under the purchase agreement; and

- (b) the remaining maturity of the purchase facility.

Dilution risk for purchased receivables

- 4.189 Dilution risk refers to the possibility that the total amount of purchased receivables is reduced through cash or non-cash credits to the receivables' obligors.⁵⁰ Unless dilution risk is immaterial, a capital charge for dilution risk is required for purchased corporate and retail receivables.
- 4.190 For the purposes of calculating risk-weights for dilution risk for either segmented pools or individual receivables making up a pool of purchased receivables, the expected long-run average one year loss rate for dilution risk must be estimated.⁵¹
- 4.191 External or internal reference data may be utilised to estimate an expected long-run average one year loss rate for dilution risk. However, these estimates must be calculated on a stand-alone basis without regard to any assumption of recourse or guarantees from the seller or other parties.
- 4.192 For the purpose of calculating risk-weights for dilution risk, the corporate IRB risk-weight function detailed in Part 5A must be used with PD set equal to the estimate of the expected long-run average one year loss rate and LGD set to 100 per cent.
- 4.193 An appropriate effective maturity must be used when determining the regulatory capital requirement for dilution risk. If it can be demonstrated that the dilution risk is appropriately monitored and managed to be resolved within one year of acquisition of the purchased receivables, the Reserve Bank may grant an approval, in writing, permitting calculations to be based on a one-year effective maturity assumption.

⁵⁰ Examples include offsets or allowances arising from returns of goods sold, disputes regarding product quality, possible debts of the obligor to a receivables obligor, and any payment or promotional discounts offered by the obligor (e.g. a credit for cash payments within 30 days).

⁵¹ The expected long-run average one-year loss rate is expressed as a percentage of the exposure amount, i.e. the total EAD owed to the registered bank/banking group by all obligors in the relevant pool of receivables.

Requirements specific to estimating probability of default and loss given default (or expected losses) for purchased corporate and retail receivables

4.194 The minimum requirements for risk quantification in order to apply the top-down approach for credit risk (in relation to purchased corporate receivables); or dilution risk (in relation to purchased corporate or retail receivables) [are described in sections 4.178 to 4.181].

Recognition of credit risk mitigants

4.195 Credit risk mitigants for purchased receivables are recognised in the same manner as other guarantees under the IRB approach. The IRB rules for guarantees may be applied to guarantees provided by the seller or a third party regardless of whether the guarantee covers credit risk, dilution risk or both.

4.196 If the guarantee covers a pool's credit risk and dilution risk, the risk-weight for an exposure to the guarantor may be substituted in place of the relevant pool's total risk-weight for default and dilution risks.

4.197 If the guarantee covers only one of either credit risk or dilution risk, the risk-weight for an exposure to the guarantor may be substituted in place of the relevant pool's risk-weight for the corresponding risk component. The capital requirement for the non-guaranteed component must then be added.

4.198 If a guarantee covers only a portion of the default and/or dilution risk of a relevant pool, the uncovered portion must be treated using the rules for proportional or tranching cover.

Minimum operational requirements

4.199 To qualify to use the top-down treatment of credit risk for purchased corporate and retail receivables, a bank must satisfy the minimum requirements outlined in sections 4.177 to 4.181.

Other exposures and claims

Equity exposures⁵²

4.200 The measure of an equity exposure on which regulatory capital requirements are based is the current book value, including revaluations, net of any allowances for impairment.

⁵² The risk-weights are assumed to represent unexpected losses only.

- 4.201 A 300 per cent risk-weight applies to exposures that fall within the equity IRB exposure class, that are not deducted from capital, and that are traded in the NZX 50 or an overseas equivalent.
- 4.202 A 400 per cent risk-weight applies to exposures that fall within the equity IRB exposure class, that are not deducted from capital, and that are not traded in the NZX 50 or an overseas equivalent.
- 4.203 Short positions held in the banking book are permitted to offset long positions in the same individual equities provided that these instruments: have been explicitly designated as hedges of specific equity holdings; and have remaining maturities of at least one year. Other short positions are to be treated as if they are long positions with the relevant risk-weight applied to the absolute value of each position.

Leases

- 4.204 Leases, other than those that expose the lessor to residual value risk are treated as exposures secured by the relevant collateral.
- 4.205 Leases that expose the lessor to residual value risk will be treated in the following manner:
- (a) the discounted lease payment stream will be risk-weighted according to the probability of default (**PD**) and loss given default (**LGD**)⁵³ assigned to the lessee; and
 - (b) the residual value will be risk-weighted at 100 per cent.

Fixed assets and all other exposures

- 4.206 A risk weight of 100 per cent applies to investments in premises, plant and equipment and all other exposures not otherwise defined in this document, except for the following which receive a 0 per cent risk weight:
- (a) cash;
 - (b) gold;
 - (c) New Zealand dollar denominated claims on the Crown and the Reserve Bank of New Zealand;
 - (d) other sovereign claims with an internal obligor rating of 1 (table 4.3).

⁵³ Use of supervisory or own-estimates of LGD will depend upon whether the foundation or advanced internal ratings-based (**IRB**) approach is used for corporate exposures. In the case of the foundation IRB approach, a 45 per cent LGD estimate will be used.

Treatment of expected losses and recognition of eligible allowances for impairment

- 4.207 This Part sets out the method to be used in calculating expected losses (**EL**) and the eligible allowances for impairment that can be used to offset EL in calculating the capital requirement.
- 4.208 This Part applies to corporate, sovereign, bank and retail internal ratings-based (**IRB**) exposure classes as defined in Sub-part 4A. EL and relevant allowances for impairment associated with other IRB exposure classes and securitisation exposures are excluded from the calculation of total EL and eligible allowances for impairment respectively.

Calculation of expected losses

- 4.209 EL must be separately calculated for non-defaulted and defaulted exposures, and then aggregated across the IRB exposure classes to give total EL (excluding specialised lending (**SL**) if the supervisory slotting approach is being used). Other than for SL exposures subject to the supervisory slotting criteria, those EL calculations are as follows:
- (a) for non-defaulted exposures, **EL** is calculated as the product of probability of default (**PD**), loss given default (**LGD**) (measured as percentages) and exposure at default (**EAD**);
 - (b) for defaulted exposures under the **AIRB** approach and the **IRB approach for retail exposures**, **EL** is the best estimate of expected loss given current economic circumstances and the facility's status; and
 - (c) for defaulted exposures under the **FIRB** approach, **EL** is equal to the product of the relevant supervisory estimates of **LGD** (expressed in percentage terms) and **EAD** (expressed in dollar terms).
- 4.210 For **SL** exposures the capital requirement is calculated as eight per cent of the risk-weighted asset amount.⁵⁴ The risk-weight to be used in this calculation is determined by the relevant supervisory slotting category to which the exposure has been mapped (refer table below).

⁵⁴ The risk-weighted asset amount consists of the total of the on-balance sheet component and the off-balance sheet equivalent multiplied by the relevant risk-weight in table 4.12 in section 6.4. For the on-balance sheet component, the amount that is multiplied by the relevant risk-weight is the book value of the exposure gross of any individual credit impairment allowances. Off-balance sheet exposures are converted to on-balance sheet equivalents using the credit conversion factors detailed in table 4.6 above.

Table 4.12
Supervisory Slotting Categories

	Strong	Good	Satisfactory	Weak	Default
Specialised lending	5%	10%	35%	100%	625%

Eligible allowances for impairment

- 4.211 For exposures in the IRB exposure classes detailed in section 4.208 above (including, in all cases, SL), total eligible allowances for impairment associated with those exposures are:
- (a) credit related allowances for impairment (e.g. individual credit impairment allowances and collective credit impairment allowances);
 - (b) partial write-offs; and
 - (c) discounts on defaulted exposures.

Portion of exposures subject to the standardised approach to credit risk

- 4.212 Where the standardised approach to credit risk is used (refer BS2A) for a portion of exposures, the following methods must be used for attributing to exposures the portion of collective credit impairment allowances.
- 4.213 Total collective credit impairment allowances must be attributed on a pro-rata basis according to the proportion of credit risk-weighted assets subject to the standardised and IRB approaches. However, when the standardised approach to credit risk is used exclusively by an entity within the consolidated banking group, all of the collective credit impairment allowances booked within that entity must be attributed to the standardised approach. Similarly, collective credit impairment allowances booked by entities within the consolidated banking group that exclusively use an IRB approach to credit risk qualify as eligible allowances for impairment in terms of section 4.211 above.

Treatment of expected loss and eligible allowances for impairment

- 4.214 Where the IRB approach to credit risk is used, the total EL amount for non-defaulted IRB exposures must be compared to total eligible allowances for impairment associated with those exposures. Similarly, total EL for defaulted IRB exposures

must be compared to total eligible allowances for impairment associated with those exposures.

- 4.215 In both cases detailed in section 4.214, where the total EL amount is higher than total eligible allowances for impairment, the difference must be deducted from Common Equity Tier 1 capital. The full amount is to be deducted and should not be reduced by any tax effects that could be expected to occur if provisions were to rise to the level of expected losses.
- 4.216 For non-defaulted exposures, where the total EL amount is lower than total eligible allowances for impairment, the difference may be included in Tier 2 capital up to a maximum of 0.6 per cent of credit risk-weighted assets.

Subpart 4C – Minimum requirements for the IRB approach

Introduction

4.217 This sub-part sets out the minimum requirements for the IRB approach to measuring credit risk for the purposes of calculating capital requirements.

The minimum requirements are set out in the following sequence.

General requirements

Rating system design

Risk rating system operations

Corporate governance and oversight

Use of internal ratings

Risk quantification

Validation of internal estimates

Supervisory LGD and EAD estimates

Requirements for recognition of leasing

4.218 Unless noted otherwise:

- (a) the requirements for assigning exposures to borrower or facility grades (and the related oversight, validation, and related matters) apply equally to the assignment of retail exposures to pools of homogeneous exposures; and
- (b) the minimum requirements set out in this part apply to both the FIRB approach and the AIRB approach.

General requirements

Risk rating systems used for capital adequacy purposes must enable risk to be ranked and quantified in a consistent, reliable and valid fashion.

4.219 Rating and risk estimation systems and processes must provide for:

- (a) meaningful assessments of obligor and transaction characteristics;

- (b) meaningful differentiation of risk; and
- (c) accurate and consistent quantitative estimates of risk.

Internal ratings and risk estimates from these systems and processes must play an essential role in the bank's risk management processes as well as for the purposes of calculating regulatory capital requirements. The systems and processes used must be based on data and analysis that are rigorous, well-established, and plausible. An appropriate degree of conservatism should be incorporated into estimates in response to limitations in the scope or quality of the information and data used. The data and analysis must be clearly documented and such documentation retained.

Rating system design

- 4.220 The term "rating system" means all of the methods, processes, controls, and data collection and systems that support the assessment of credit risk, the assignment of internal credit-risk ratings, and the quantification of associated default and loss estimates.
- 4.221 If multiple rating methodologies or systems are used within an exposure class, the rationale for assigning an obligor to a rating methodology or system must be documented and must be applied in a manner that best reflects the risk-level of the obligor.⁵⁵ Each of the systems used for IRB purposes must comply with the minimum requirements.

Rating dimensions for the corporate, sovereign, and bank IRB exposure classes

- 4.222 A qualifying IRB rating system must have two separate and distinct dimensions:
- (i) the risk of obligor default (the "obligor rating"); and
 - (ii) transaction-specific factors (the "facility rating").

4.223 **The risk of obligor default (obligor rating grades)**

Separate exposures to a given obligor must be assigned to the same obligor rating grade, irrespective of any differences in the characteristics of the specific transactions.

There are two exceptions to this general rule:

- (a) in order to take into account country transfer risk, different obligor grades may be assigned according to whether a facility is denominated in local or foreign currency.

⁵⁵ Banks must not allocate borrowers inappropriately to rating systems with the aim of minimising regulatory capital requirements (i.e. cherry-picking by choice of rating system).

- (b) a facility's associated guarantees may be reflected by an adjustment to the obligor grade.

In the case of either exception, separate exposures to a given obligor may be assigned different obligor grades.

Credit policy must articulate the levels of risk implied by each obligor grade. The grades must be such that perceived and measured risk increase as credit quality declines from one grade to the next. In articulating the risk of each grade the policy must describe both the probability-of-default risk typical for obligors assigned that grade and the criteria used to distinguish that level of credit risk.

4.224 **Transaction-specific factors (facility ratings)**

Facility ratings must reflect LGD transaction-specific factors such as collateral, seniority, product type, etc.

If the FIRB approach is used, this requirement can be fulfilled by having a rating system with a facility dimension that reflects both obligor and transaction-specific factors. For example, a facility rating that reflects EL by incorporating both obligor strength (PD) and loss severity (LGD) considerations would qualify. Likewise a rating system that exclusively reflects LGD would qualify. Where a rating dimension reflects EL and does not separately quantify LGD, the supervisory estimates of LGD must be used.

If the AIRB approach is used, facility ratings must reflect only LGD and must take account of factors that influence LGD including, but not limited to, the type of collateral, product, industry and purpose. Obligor characteristics may be included as LGD rating criteria only to the extent they are predictive of LGD.

If the supervisory slotting criteria are used for the SL sub-class, the two dimensional requirement does not apply. Given the interdependence between obligor and transaction characteristics in SL, registered banks may use a single rating dimension that reflects EL by incorporating both obligor strength (PD) and loss severity (LGD) considerations.

Rating dimensions for the retail IRB exposure class

- 4.225 Rating systems for retail exposures must account for both obligor and transaction risk, and must capture all relevant obligor and transaction characteristics. Each exposure that meets the IRB definition of a retail exposure (see 4.7) must be assigned to a particular pool. This rating process must: provide for a meaningful differentiation of risk; group together sufficiently homogenous exposures; and allow for accurate and consistent estimation of PD, LGD and EAD at pool level.

- 4.226 PD, LGD, and EAD must be estimated for each pool. Different pools may share the same PD, LGD and EAD estimates.

At a minimum, the following risk drivers must be taken into account when exposures are assigned to a pool.

- (a) Obligor-risk characteristics. Indicators of a borrower's risk characteristics might include, for example, a measure of the borrower's debt servicing burden and demographic information regarding factors such as age or occupation.
- (b) Transaction-risk characteristics, including product and/or collateral types. Cross-collateral provisions must be explicitly addressed where present. Indicators of transaction risk characteristics might include, for example, loan to value measures, seasoning, guarantees, and seniority.

Rating structure for the corporate, sovereign, and bank IRB exposure classes

- 4.227 Specific rating definitions, processes and criteria must be used to assign exposures to grades within a rating system. The rating definitions and criteria must result in a meaningful differentiation of risk. All relevant and material information must be considered when borrower and facility ratings are assigned.⁵⁶ That information must be up to date. Where only limited information is available, assignments of exposures to borrower and facility grades or pools must be made on a conservative basis.
- 4.228 An obligor grade is defined as an assessment of obligor risk, based on a specified and distinct set of rating criteria, from which estimates of PD are derived. A grade definition must include a description of the degree of credit risk typical for obligors assigned to that grade and details of the criteria used to identify that level of credit risk.⁵⁷

A registered bank must have a meaningful distribution of exposures across grades on both its borrower-rating and, where relevant, facility-rating scales. To meet the objective of having a meaningful distribution of exposures across obligor grades with no excessive concentrations, there must be a minimum of seven obligor grades for non-defaulted obligors and one grade for those that have defaulted.⁵⁸

- 4.229 Where a loan portfolio is concentrated in a particular market segment and range of credit risk there must be enough grades within that range of credit risk to avoid undue concentrations of obligors in particular grades. Significant concentrations within a single grade or grades must be justifiable on the grounds of convincing empirical evidence that the grade or grades cover reasonably narrow PD bands and that the credit risk posed by each obligor in a grade falls within that band.

Registered banks using the supervisory slotting criteria for the SL exposure classes must have at least four grades for non-defaulted obligors, and one for defaulted obligors.

⁵⁶ An external rating can be the primary factor determining an internal rating assignment. However, the bank must ensure that it considers other relevant information.

⁵⁷ "+" or "-" modifiers to alpha or numeric grades may only qualify as distinct grades if the registered bank employing the modifiers: has developed complete rating descriptions and criteria for their assignment; and separately quantifies PD estimates for the modified grades.

⁵⁸ This is subject to the exception for banks using the supervisory slotting approach for any SL sub-class.

- 4.230 Where the AIRB approach is used there must be a sufficient number of facility grades to ensure that no single grade contains facilities with widely varying LGDs. The criteria used to define facility grades must be grounded in empirical evidence.

Rating structure for the retail IRB exposure class

- 4.231 For each pool of retail exposures identified, quantitative measures of loss characteristics (PD, LGD, and EAD) must be calculated. There must be a sufficient number of exposures in each pool to ensure meaningful quantification and validation of loss characteristics at the pool level.

No single pool may include an undue concentration of the total retail exposure.

Rating criteria

- 4.232 Rating-grade descriptions and criteria must enable obligors or facilities that pose similar risk to be consistently assigned to the same rating grade.⁵⁹

If rating criteria and procedures differ across obligor types or facilities, the registered bank must monitor possible inconsistencies and must alter rating criteria to improve consistency when appropriate.

Rating definitions must be documented in a way that allows third parties, such as internal audit (or an equally independent function), to understand the assignment of ratings, to replicate rating assignments and to evaluate the appropriateness of the grade/pool assignments.

The rating criteria must be consistent with the internal lending standards employed by the registered bank and its policies for managing obligors and facilities that have deteriorated in credit quality.

- 4.233 If the supervisory slotting criteria are used for SL exposures, those exposures must be assigned to internal rating grades based on the registered bank's own criteria, systems and processes, subject to compliance with the requisite minimum requirements outlined in this document. These internal rating grades must be mapped into the five supervisory rating categories identified.⁶⁰

Rating assignment horizon

- 4.234 Although the PD is to be measured for a one-year horizon, a long-run PD must be used to assign obligor ratings.
- 4.235 An obligor rating must represent an assessment of the obligor's ability and willingness to perform contractually, even in the face of adverse economic conditions or unexpected events.⁶¹ The range of economic conditions considered

⁵⁹ This consistency should exist across lines of business, departments and geographic locations within a bank.

⁶⁰ Tables 1 to 4 in Annex 1 provide, for each sub-class of SL exposures, the general assessment factors and characteristics exhibited by the exposures that fall under each of the supervisory categories. Each lending activity has a unique table describing the assessment factors and characteristics.

⁶¹ For example, a bank might base rating assignments on specific stress scenarios. Alternatively, a bank might take into account borrower characteristics that are reflective of the borrower's vulnerability to adverse economic conditions or unexpected events, without explicitly specifying a stress scenario.

when making such assessments must be consistent with current conditions and those that are likely to occur over a business cycle within the respective industry and geographic region.

- 4.236 Given the difficulties in forecasting future events and the influence they will have on a particular obligor's financial condition, a conservative view must be taken when assessing the implications of projected information. Furthermore, appropriate conservatism must be applied to any analysis undertaken.

Use of models

When credit scoring models or mechanical procedures are used as the primary or partial basis for making ratings assignments, the outcome of the model or mechanical procedure must be supplemented by human judgement and human oversight to ensure that all relevant and material information is considered and that the model or mechanical procedure is used appropriately.⁶² The registered bank must have written guidance describing how human judgement and model results are to be combined.

The models or procedures used, and the variables used in the models, must have good predictive power and their use must not distort regulatory capital requirements. The model must be accurate on average across the range of obligors or facilities to which the registered bank is exposed, and there must be no known material biases.

A process must be in place for vetting data inputs into a statistical default or loss prediction model. That process must include an assessment of the accuracy, completeness and appropriateness of the data that are specific to the assignment of an approved rating.

The data that a registered bank uses to build a model must be representative of the population of the registered bank's actual obligors and/or facilities.

There must be a regular cycle of model validation that includes: monitoring model performance and stability; reviewing model relationships; and testing model outputs against outcomes.

Documentation of rating system design

- 4.237 Rating systems' design and operational details must be documented. The documentation must evidence compliance with the minimum requirements, and must address topics such as:

- (a) portfolio differentiation;
- (b) rating criteria;
- (c) responsibilities of parties that rate obligors and facilities;
- (d) definition of what constitutes a rating exception;
- (e) parties that have authority to approve exceptions;

⁶² Human review of model-based assignments should focus on finding and limiting errors associated with known model weaknesses and must also include credible ongoing efforts to improve the model's performance.

- (f) frequency of rating reviews; and
- (g) management oversight of the rating process.

The rationale for the choice of internal rating criteria must be documented and the bank must be able to demonstrate that the rating criteria and procedures used result in ratings that meaningfully differentiate risk.

Rating criteria and procedures must be periodically reviewed to determine their continued appropriateness.

The history of major changes and the justification for those changes must be documented. The organisational structure for assigning ratings, including the internal control structure, must also be documented.

4.238 The specific definitions of default and loss used internally must be documented. Those definitions must be consistent with the reference definitions set out in sections 4.268 to 4.272.

4.239 If statistical models or mechanical methods are employed in the rating process, the methodologies used must be documented. The documentation must:

- (a) contain a detailed outline of the theory, assumptions and/or mathematical and empirical basis of the assignment of estimates to grades, individual obligors, exposures, or pools, and the data source(s) used to estimate the model;
- (b) set out the statistical process (including out-of-time and out-of-sample performance tests) for validating the model; and
- (c) indicate any circumstances under which the model does not, or is expected to not, work effectively.

If a model obtained from a third-party vendor that claims proprietary technology is used, the above documentation requirements must still be met.

Risk rating system operations

Coverage of ratings

4.240 For exposures classified as exposures to corporates, sovereigns, or banks:

- (a) each borrower and guarantor must be assigned an obligor rating; and
- (b) each exposure must be assigned a facility rating as part of the loan approval process.

Each retail IRB exposure must be assigned to a pool as part of the loan approval process.

- 4.241 A registered bank must rate separately each separate legal entity to which the registered bank is exposed. A registered bank must have policies regarding the treatment of individual entities in a connected group. Those policies must identify the circumstances in which the same rating may or may not be assigned to some or all related entities.

Integrity of the rating process for the IRB corporate, sovereign, and bank exposure classes

- 4.242 Rating assignments and periodic rating reviews must be completed or approved by a party that does not directly stand to benefit from the extension of credit.

The operational processes underlying rating assignments must be documented in a registered bank's procedures and incorporated into the registered bank's policies. Credit policies and underwriting procedures must reinforce and foster the independence of the rating process.

- 4.243 Obligor ratings and facility ratings must be reviewed at least annually. Some credits must be reviewed more frequently (especially, but not limited to, higher risk obligors or problem exposures).

A rating review must be initiated if material new information on an obligor or facility comes to light.

- 4.244 There must be a process to obtain and update relevant and material information on: each obligor's financial condition; facility characteristics that affect LGDs and EADs; and on other characteristics that affect the assigned estimates of PD, LDG and EAD. There must be a procedure for updating an obligor's rating in a timely fashion upon receipt of relevant and material information.

Integrity of the rating process for the retail IRB exposure class

- 4.245 Loss characteristics and the performance of each identified risk pool must be reviewed at least annually.

Overrides

- 4.246 The situations in which bank officers may override the outputs of the rating process on the basis of expert judgement must be clearly documented. Such articulation must include who can effect any override, and how and to what extent those people may do so.

Guidelines and processes must be in place for monitoring individually any case in which human judgement is used to override a model-based rating, or variables were excluded from a model or inputs to a model were altered.

Data maintenance

4.247 Data must be collected on important characteristics of obligors and facilities, so as to:

- (a) support the internal credit risk measurement and management process; and
- (b) enable the requirements in this document to be met.

The data must contain sufficient detail to allow retrospective re-allocation of obligors and facilities to grades.

Data maintenance for the corporate, sovereign, and bank IRB exposure classes

4.248 Rating histories must be maintained on obligors and eligible guarantors. The histories must include: the rating since the borrower/guarantor was assigned an internal grade; the dates the ratings were assigned; the methodology and key data used to derive the rating; and the person/model responsible.

Information must be retained on the identity of obligors and facilities that default, and on the timing and circumstances of such defaults. Data must also be retained on the estimated PDs and realised default rates associated with rating grades and ratings migration, in order to track the predictive power of the obligor rating system.

4.249 If the AIRB approach is used, the registered bank must collect and store a complete history of data on the LGD and EAD estimates associated with each of its facilities and, for each facility the key data and methodology used to derive the estimate and the person or model responsible for the estimate.

Data on the estimated and realised LGDs and EADs associated with each defaulted facility must also be collected.

A registered bank using the AIRB approach and reflecting the credit risk mitigating effects of guarantees or credit derivatives through its LGD estimates must retain data on the LGD of the facility before and after evaluation of the effects of the guarantee/credit derivative. Information about the components of loss or recovery for each defaulted exposure, including the identity of the defaulting party, must be retained.⁶³

4.250 A registered bank using the FIRB approach and using supervisory estimates must retain the relevant data.⁶⁴

⁶³ Examples of such information that a bank must retain include: amounts recovered; source of recovery (e.g. collateral, liquidation proceeds and guarantees); time period required for recovery; and administrative costs.

⁶⁴ The relevant data can include those on loss and recovery experience for corporate exposures under the foundation approach, and on realised losses for banks using the supervisory slotting criteria for SL.

Data maintenance for the retail IRB exposure class

4.251 Data used in the process of allocating retail exposures to pools must be retained.⁶⁵

A registered bank must retain data on the estimated PDs, LGDs and EADs associated with its pools of retail exposures.

For defaulted exposures, data on the pools to which the exposure was assigned over the year prior to default and on the realised outcomes for LGD and EAD must be retained.

Stress tests used in assessment of capital adequacy

4.252 An IRB bank must have in place sound stress testing processes for use in the assessment of capital adequacy.

Stress testing must involve identifying possible events or future changes in economic conditions that could have unfavourable effects on credit exposures and on the assessment of the registered bank's ability to withstand such changes. Examples of scenarios that could be used are: (i) economic or industry downturns; (ii) market-risk events; and (iii) liquidity conditions.

4.253 A registered bank must perform one or more credit risk stress tests to assess the effects of certain specific scenarios on its regulatory capital requirement. The tests must be meaningful and reasonably conservative.

4.254 Whatever stress-testing method is used, a registered bank must consider the following sources of information:

- (a) the registered bank's own data;⁶⁶
- (b) information about the impact of a small deterioration in the credit environment on the registered bank's ratings, which in turn can provide some information about the likely effect on the registered bank's ratings of a situation of greater distress;⁶⁷ and
- (c) evidence of ratings migration in external ratings.⁶⁸

⁶⁵ Such data can include data on borrower and transaction risk characteristics used either directly or through use of a model, as well as data on delinquency.

⁶⁶ The bank's own data should allow estimation of the ratings migration of at least some exposures.

⁶⁷ This information should give some indication about the likely effect of bigger, stress circumstances

⁶⁸ Use of evidence on migration in external ratings would include the bank broadly matching its internal buckets to rating categories.

Corporate governance and oversight

Corporate governance

4.255 All material aspects of the rating and estimation processes must be approved by the bank's board of directors. The board of directors must be notified of material changes or exceptions from established policies that will materially affect the operations of the rating system. Directors must be confident that management meets the following requirements.

4.256 Senior management must approve any material differences between established procedure and actual practice.

Management must ensure, on an ongoing basis, that the rating system operates properly.

Management and staff in the credit control function must regularly assess:

- (a) the performance of the rating process;
- (b) areas needing improvement; and
- (c) the status of efforts to improve previously identified deficiencies.

4.257 Internal ratings must be an essential part of reporting to the board of directors and senior management.

Reporting must include risk profile by grade, migration across grades, estimation of the relevant parameters per grade, and comparison of realised default rates (and realised LGD and EAD where the AIRB approach is used) against expectations.

Credit risk control

4.258 Independent credit risk control units must be responsible for the design or selection, implementation and performance of internal rating systems. Such units must be functionally independent from the personnel and management functions responsible for originating exposures. These units must be responsible for areas including:

- (a) testing and monitoring internal grades;
- (b) production and analysis of summary reports from the rating system that must include historical default data sorted by rating at the time of default and one year prior to default, grade migration analyses, and monitoring of trends in key rating criteria;
- (c) implementing procedures to verify that rating definitions are consistently applied across departments and geographic areas;
- (d) reviewing and documenting any changes to the rating process, including the reasons for any changes; and
- (e) reviewing whether the rating criteria remain predictive of risk.

Changes to the rating process, criteria or individual rating parameters must be documented and retained.

Internal and external audit

- 4.259 Internal or external audit or an equally independent function must review, annually or more frequently, the rating system and its operations. The findings must be documented.

The review must address the operations of the credit function and the estimation of PD and, where relevant, LGD and EAD. Areas of the review must include adherence to all applicable minimum requirements.

Use of internal ratings

- 4.260 Internal ratings and default and loss estimates must play an essential role in the credit approval, risk management, internal capital allocations, and corporate governance functions. While it is recognised that a bank might not use exactly the same estimates for IRB estimates as for all other internal purposes, the bank must document any differences and be able to map the IRB estimates to the internal estimates in a way that demonstrates the reasonableness of the differences.
- 4.261 A bank must have a credible track record in its use of internal ratings information.

Risk quantification

Overall requirements for estimation

- 4.262 This section addresses the broad requirements for internal estimates of PD and, where relevant, LGD and EAD.

PD must be estimated for each internal obligor grade for corporate, sovereign and bank exposures, or in the case of retail exposures for each pool. The bank is not required to produce its own estimates of PD for certain equity exposures and certain exposures that fall within the SL sub-classes.

- 4.263 PD estimates must be a long-run average of one-year default rates for obligors in the grade. The exception is for retail exposures, for which the definition of default may be applied at the facility level rather than at the obligor level.⁶⁹

Requirements specific to PD estimation are provided in sections 4.275 to 4.283. If using the AIRB approach, estimates must be made of an appropriate long-run default-weighted LGD (as defined in sections 4.284 to 4.288) for corporate, sovereign or bank exposures and each retail pool.

⁶⁹ Consequently, default by an obligor on one obligation does not automatically require that all other obligations be treated as defaulted.

If using the AIRB approach, estimates must also be made of an appropriate long-run default-weighted average EAD for corporate, sovereign or bank exposures and each retail pool. Requirements specific to EAD estimation appear in sections 4.291 to 4.294.

For corporate, sovereign and bank exposures, if the FIRB approach is used then the supervisory estimates of these parameters must be used.

- 4.264 Internal estimates of PD, LGD, and EAD must incorporate all relevant, material and available data, information and methods. Internal and external data may be used. The consequent estimates must be representative of long run default and loss experience.
- 4.265 Estimates must take into account historical experience and empirical evidence, and not be based purely on subjective or judgemental considerations. Any changes in lending or collection practices must be taken into account. Estimates must reflect the implications of technical advances and new data and other information, as these become available. Estimates and methods for estimation must be reviewed at least annually.
- 4.266 The economic or market conditions underlying the data used for estimation must be relevant to current and reasonably conceivable future conditions.

The following factors must be closely matched to or at least comparable with those of the bank's exposures and standards include:

- (a) the population of exposures in the sample used for estimation;
- (b) lending standards in use and other relevant characteristics of the lending process in use when the data were generated.

There must be sufficient data – both the number of exposures and the sample period – to provide confidence in the accuracy and robustness of estimates of LGD and EAD.

The estimation technique must perform well in out-of-sample tests.

- 4.267 Estimates of PD, LGD, and EAD involve unpredictable errors. The estimates must be more conservative the larger is the likely range of errors.

Definition of default

- 4.268 A default is considered to have occurred with regard to a particular obligor when one or both of the two following events have taken place;
- (a) the bank considers that the obligor is unlikely to pay its credit obligations in full, without recourse by the bank to actions such as realising any security; and

- (b) the obligor is past due more than 90 days on a material credit obligation.⁷⁰

4.269 Indications that payment is unlikely include:

- (a) that the credit obligation is given non-accrual status;
- (b) that a charge-off or account-specific allowance for impairment results from a significant perceived decline in credit quality;
- (c) that the credit obligation is sold at a material credit-related economic loss;
- (d) that the bank consents to a distressed restructuring of the credit obligation and this is likely to result in a diminished financial obligation;
- (e) that the bank has filed for the obligor's bankruptcy, statutory management, liquidation, voluntary administration or similar circumstance in respect of the obligor's credit obligation; and
- (f) that the obligor is insolvent, bankrupt, or has been placed in statutory management, liquidation, voluntary administration or similar circumstance and this would prevent or delay repayment of the credit obligation.

4.270 For retail exposures, the definition of default can be applied at the level of a particular exposure, rather than at the level of the obligor. In that case, default by an obligor borrower on one obligation would not require a bank to treat all of that obligor's other obligations to the banking group as defaulted.

4.271 Actual defaults on IRB exposure classes must be recorded according to the reference definition of default.

The reference definition of default must be used to estimate PD and, where relevant, LGD and EAD. In arriving at these estimates, external data may be used that are inconsistent with the reference definition of default, subject to the requirements set out in sections 4.275 to 4.276. However, such data must be adjusted to achieve broad equivalence with the reference definition of default.

4.272 If a previously defaulted exposure's status is such that no trigger of the reference definition of default applies, the exposure should be treated as a non-defaulted facility. In the case of a restructured item that item cannot be re-rated to a non-defaulted grade or rating until the restructured item has operated in accordance with non-concessional terms and conditions for a period of at least six months.

Re-ageing

4.273 Clearly documented policies must be in place determining when an exposure becomes classified as defaulted. This applies particularly to the re-ageing of facilities and to the granting of extensions, deferrals, renewals and rewrites to existing accounts.

⁷⁰ Overdrafts will be considered as being past due once the customer has breached an advised limit or been advised of a limit smaller than current outstandings.

The 90 days may be measured either as 90 calendar days past due or as 90 days worth of contractual payments past due.

At a minimum, the re-ageing policy must include:

- (a) approval authorities and reporting requirements;
- (b) minimum age of a facility before it is eligible for re-ageing;
- (c) delinquency levels of facilities that are eligible for re-ageing;
- (d) maximum number of re-ageings per facility; and
- (e) a reassessment of the obligor's capacity to repay.

The policy must be applied consistently over time, and its application must meet the 'use test'.

Consistent with section 4.272, in the case of a restructured item re-ageing cannot occur until the restructured item has operated in accordance with non-concessional terms and conditions for a period of at least six months.

Treatment of overdrafts

4.274 Authorised overdrafts must be subject to a credit limit that must be brought to the attention of the client.

Any breach of the limit must be monitored, and the account must be considered defaulted if not brought under the limit after 90 days.

Risk quantification requirements specific to PD estimation – standards for the corporate, sovereign, and bank IRB exposure classes

4.275 Estimation of the average PD for each rating grade must use information and techniques that take appropriate account of long-run experience. For example, one or more of three specific techniques may be used: internal default experience; mapping to external data; and statistical default models.

4.276 A primary technique may be emphasised and others used for comparison and as a basis for any adjustment. Mechanical application of a technique must not be employed without supporting analysis. Judgemental considerations must be employed where appropriate for combining the results of different techniques, and for making adjustments for the limitations of mechanical risk quantification techniques and of information used.

Whatever combination of internal, external and pooled data is used, the quantification procedure must use at least one source on which at least five years of observations are available. If the relevant and material data are available for any source over a longer time period, that longer time period must be used.

4.277 **Internal default experience**

PD may be estimated using data on internal default experience. The estimates must reflect underwriting standards and any differences between the rating system that generated the data and the current rating system. An appropriate margin of conservatism must be added to an estimate of PD where only limited data are available or where underwriting standards or rating systems have changed.

Data pooled across other banks that have similar internal rating systems and criteria may also be used for estimating PD.

4.278 **Mapping to external data**

Internal grades may be associated with or mapped to the scale used by an external credit assessment institution, and the observed default rate for the external institution's grades then attributed to the bank's grades. Such mapping must be documented and based on comparisons:

- (a) between internal rating criteria and those of the external institution;
- (b) between the default definitions used internally and those used by the external institution; and
- (c) between the internal and external ratings of any obligors common to the bank's data and the external institution's data.

Biases or inconsistencies in the mapping approach or underlying data must be avoided.

The external institution's rating criteria underlying the data must reflect the risk of obligors and not the transactions' characteristics.

4.279 **Statistical default models**

A simple average of default-probability estimates for individual obligors in a given grade may be used if estimates are drawn from statistical default prediction models. The use of default probability models for this purpose must meet the requirements specified in section 4.235.

Risk quantification requirements specific to PD estimation – requirements for the retail IRB exposure class

4.280 Internal data should generally be the primary source of information for estimating loss characteristics. External data or statistical models may also be used where there is evidence of a reliable relationship between the loss characteristics of the bank's portfolio and those relating to the external data or model.

All relevant and material data sources may be used as points of comparison.

4.281 For retail IRB exposures an estimate of the expected long-run loss rate can be used to drive estimates of PD and LGD. In particular:

- (a) an appropriate PD estimate may be used to infer the long-run default-weighted average LGD; or

- (b) a long-run default-weighted average LGD may be used to infer the appropriate PD.

In either case, the LGD used for the IRB capital calculation must:

- (a) be greater than or equal to the long-run default-weighted average LGD; and
- (b) be consistent with the concepts defined in this part.

4.282 Whatever combination of internal, external and pooled data is used, the quantification procedure must use at least one source, and the total length of the underlying historical observation period used must be at least five years. If the relevant and material data are available for any source over a longer time period, that longer time period must be used. Greater weight may be given to more-recent data (and commensurately less weight to less-recent data) where more recent data better predict loss rates.

4.283 Long-term retail exposures may be characterised by seasoning effects that peak several years after origination. In the face of growth in exposures the bank must take steps to ensure that:

- (a) estimation techniques remain accurate; and
- (b) the current capital level and earnings and funding prospects are sufficient for future capital needs.

PD estimates must be adjusted upward (in a consistent manner over time) to anticipate seasoning effects.

Risk quantification requirements specific to internal LGD estimates –all exposure classes

4.284 The definition of loss used in estimating LGD is economic loss. When measuring economic loss, all relevant factors must be taken into account. This must include material discount effects and material direct and indirect costs associated with collecting on the exposure.

Loss must not simply be measured as the loss recorded in accounting records, although accounting and economic losses must be able to be reconciled. Workout and collection expertise significantly influence recovery rates and must be reflected in LGD estimates. Adjustments to estimates for such expertise must be conservative until there is sufficient internal empirical evidence of the impact of the degree of expertise.

4.285 For each facility, an estimated LGD must reflect economic downturn conditions that capture the relevant risks. For residential mortgage exposures the downturn conditions should include a fall in average house prices of 30 per cent.

Estimated LGD must be at least as large as the long-run default-weighted average rate of loss given default that is calculated based on the average economic loss for all observed defaults within the data source for the given type of facility.

LGD estimates must account for the possibility that LGD of a facility could be higher than the default-weighted average during periods of higher than average credit losses (including variations in LGD over the business cycle). For this purpose, banks may use averages of loss severities observed during periods of high credit losses, forecasts based on appropriately conservative assumptions, or other similar methods.

- 4.286 The LGD estimates must account, with an appropriate degree of conservatism, for:
- (a) any significant interdependence between the risk of the obligor and that of the collateral or collateral provider; and
 - (b) any currency mismatch between the underlying obligation and the collateral.
- 4.287 LGD estimates must have regard to historical recovery rates. LGD estimates must not be solely based on any collateral's estimated market value. To the extent that LGD estimates reflect the existence of collateral, there must be in place internal processes and operational procedures for collateral management and associated risk-management that are consistent with those required for the standardised approach.
- 4.288 An LGD estimate for a defaulted exposure should reflect the risk of additional, unexpected losses during recovery. The estimate of expected loss on a defaulted exposure must be based on current economic circumstances and facility status. For a defaulted exposure, the capital requirement must be set on a risk-sensitive basis, and will be equal to any excess of LGD over the best estimate of expected loss.⁷¹
- 4.289 **Risk quantification requirements specific to internal LGD estimates – additional standards for the corporate, sovereign and bank IRB exposure classes**
- Estimates of LGD must be based on a data observation period that covers at least one complete economic cycle where possible, but that must be no shorter than seven years from at least one source. If relevant and material data are available over a longer period for any source, this longer period must be used.
- 4.290 **Risk quantification requirements specific to internal LGD estimates – additional standards for the retail IRB exposure class**
- Estimates of LGD for retail exposures must be based on at least five years of data observations. Where fewer data are available, estimation must be more conservative.

⁷¹ Analysis must justify any cases in which the best estimate of expected loss on a defaulted exposure is less than the sum of allowances for impairment and partial charge-offs on that exposure.

Greater weight may be given to more recent data (and commensurately less weight to less-recent data) where more recent data better predict loss rates.

Risk-quantification requirements specific to internal EAD estimation – standards for all exposure classes

- 4.291 EAD is defined as the expected gross exposure of the facility upon default of the obligor (i.e. the amount legally owed to the bank).⁷²

For on-balance sheet items, EAD must be estimated at no less than the current drawn amount, subject to recognising the effects of on-balance sheet netting as specified in the FIRB approach. The minimum requirements for the recognition of netting are the same as those under the FIRB approach. The additional minimum requirements for internal estimation of EAD under the AIRB approach therefore focus on the estimation of EAD for off-balance sheet items.

If the AIRB approach is used, there must be established procedures in place for estimating EAD for off-balance sheet items. These must specify the estimates of EAD to be used for each facility type. Estimates of EAD should reflect the possibility of additional drawings by the obligor up to the time a default event is triggered. EAD estimates must also account for the possibility of additional drawings after default if the bank does not include the possibility of such drawings in its LGD estimates. Where estimates of EAD differ by facility type, the delineation of these facilities must be clear and unambiguous.

- 4.292 If the AIRB approach is used, an estimate of EAD must be assigned to each facility. The estimate must be of the long-run default-weighted average EAD for similar facilities and obligors over a sufficiently long period of time, and must incorporate a margin of conservatism reflecting the likely range of errors in the estimate.

Where EAD estimates for an exposure vary over the business cycle, the EAD estimates must be appropriately conservative for an economic downturn (if these would be more conservative than the long-run average).

- 4.293 EAD estimates must be derived from criteria that are plausible, intuitive, and represent what the bank believes to be the material drivers of EAD. The choices must be supported by credible internal analysis.

Information must be produced about the factors driving EAD experience, as well as information about the EAD experience itself.

All relevant and material information must be used in the derivation of EAD estimates. The estimates of EAD must be reviewed at least annually and when material new information comes to light.

- 4.294 Policies and strategies must be in place relating to account monitoring and payment processing.

⁷² This definition applies to both on-balance sheet items and off-balance sheet items.

The bank must take into account its ability and willingness to prevent further drawings in circumstances short of payment default.

Adequate systems and procedures must be in place to monitor facility amounts, current outstandings against committed lines, and changes in outstandings per obligor and per grade.

Outstanding balances must be able to be monitored daily.

Risk-quantification requirements specific to internal EAD estimation – Additional standards for the corporate, sovereign and bank IRB exposure classes

4.295 Estimates of EAD must be based on a time period that covers a complete economic cycle where possible, and must be no shorter than seven years. If relevant and material data are available over a longer period from any source, this longer period must be used.

EAD estimates must be calculated using a default-weighted average and not a time-weighted average.

Risk-quantification requirements specific to internal EAD estimation – Additional standards for the retail IRB exposure class

4.296 EAD estimates for retail exposures must be based on data observations over at least five years. The less data that are available, the more conservative should be the estimates. Greater weight may be given to more-recent data (and commensurately less weight to less-recent data) where more recent data better predict drawdowns.

Minimum requirements for assessing effect of guarantees and credit derivatives – Standards for banks using own estimates for LGD

4.297 Guarantees

If internal estimates of LGD are used, the risk-mitigating effect of guarantees may be reflected through an adjustment to PD or LGD estimates.

For retail exposures, the risk-reducing effect of any guarantees may be reflected through estimates of either PD or LGD, provided this is done consistently both across types of guarantees and over time.⁷³

In all cases, both the obligor and all recognised guarantors must be assigned a obligor rating at the initiation of the bank's relationship with those parties and thereafter. All minimum requirements for assigning obligor ratings set out in this document must be followed, including the regular monitoring of the guarantor's condition and ability and willingness to honour its obligations.

⁷³ This applies whether the guarantee is for an individual obligation or a pool of exposures.

All relevant information must be retained on the obligor independent of the assessed effect of any guarantee and guarantor. In the case of retail guarantees, these requirements also apply to the assignment of an exposure to a pool, and the estimation of PD.

A guaranteed exposure must not be assigned an adjusted PD or LGD such that the adjusted risk weight would be lower than that of a comparable, direct exposure to the guarantor. Possible favourable effects of imperfect expected correlation between default events for the obligor and guarantor must not be taken into account in the assignment of ratings and the estimates of PD that are used for calculating regulatory minimum capital requirements.⁷⁴

4.298 **Eligible guarantors and guarantees**

There are no in-principle restrictions on the types of eligible guarantors, other than a restriction on the recognition of connected persons. There must be clearly specified criteria for the types of guarantors that will be recognised for regulatory capital purposes.

A guarantee must be:

- (a) evidenced in writing;
- (b) non-cancellable on the part of the guarantor;
- (c) in force until the debt is satisfied in full (to the extent of the amount and tenor of the guarantee); and
- (d) legally enforceable against the guarantor in a jurisdiction in which the guarantor has assets to attach and enforce a judgement.
- (e) provided by a party who is not a connected person (as defined in the connected exposures policy BS8).

Guarantees prescribing conditions under which the guarantor may not be obliged to perform (conditional guarantees) may be recognised under certain conditions.⁷⁵ The assignment criteria must adequately address any potential reduction in the risk-mitigating effect stemming from the conditionality of a guarantee.

4.299 **Adjustment criteria**

Clearly specified criteria must be in place for adjusting obligor grades or LGD estimates (or in the case of retail and eligible purchased receivables, the process of allocating exposures to pools) to reflect the effect of guarantees for regulatory capital purposes. Criteria must contain as much detail as the criteria for assigning exposures

⁷⁴ That is, the adjusted risk weight must not reflect the risk mitigation of “double default”.

⁷⁵ This is in contrast to the foundation approach to corporate, bank, and sovereign exposures, under which such recognition is not permitted.

to grades consistent with sections 4.233 and 4.234, and must follow all minimum requirements for assigning borrower or facility ratings set out in this part.

The criteria must address the guarantor's ability and willingness to perform under the guarantee.

The criteria must address the likely timing of any payments and the degree to which the guarantor's ability to perform under the guarantee is correlated with the obligor's ability to repay.

Criteria must address the extent to which residual risk to the obligor remains.

4.300 **Credit derivatives**

The minimum requirements for guarantees are relevant also for single-name credit derivatives.

The criteria used for assigning adjusted obligor grades or LGD estimates (or pools) for exposures hedged with credit derivatives must require that the exposure on which the protection is based (the reference exposure) cannot be different from the underlying exposure, unless the conditions outlined in the foundation approach are met.

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.

The extent to which other forms of residual risk remain must be considered.

Minimum requirements for assessing effect of guarantees and credit derivatives – Standards for banks using foundation LGD estimates

4.301 The minimum requirements outlined in sections 4.297 to 4.300 apply if the foundation LGD estimates are used, with the following exceptions:

- (a) The bank is not able to use an 'LGD-adjustment' option; and
- (b) The range of eligible guarantees and guarantors is limited to those outlined in section 4.109.

Requirements specific to estimating PD and LGD (or EL) for qualifying purchased receivables

4.302 The following minimum requirements for risk quantification must be satisfied for any purchased receivables (corporate or retail) making use of the top-down treatment of credit risk and/or the IRB treatments of dilution risk.

The purchasing bank will be required to group the receivables into sufficiently homogeneous pools so that accurate and consistent estimates of PD and LGD (or EL) for default losses and EL estimates of dilution losses can be determined. The

risk-bucketing process must reflect the seller's underwriting practices and the heterogeneity of its customers.

Methods and data for estimating PD, LGD, and EL must comply with the existing risk-quantification standards for retail exposures.⁷⁶

4.303 **Minimum operational requirements**

When purchasing receivables the bank must be satisfied that current and future advances can be repaid from the liquidation of (or collections against) the receivables pool.

A receivables pool will qualify for the top-down treatment of credit risk only if it and the overall lending relationship are closely monitored and controlled. Specifically, there must be legal certainty, and there must be effective systems in place for: monitoring; work-outs; and controlling collateral, credit availability, and cash.

4.304 **Legal certainty**

A facility must be structured such that the bank has effective ownership and control of the cash remittances from the receivables under all foreseeable circumstances. When the obligor makes payments directly to a seller or servicer, there must be regular verification that payments are forwarded completely and within the contractually agreed terms including incidences of seller or servicer distress and insolvency. Ownership over the receivables and cash receipts must be protected against legal challenges or moratoria that could inhibit or materially delay the lender's ability to liquidate/assign the receivables or retain control over cash receipts.

4.305 **Effectiveness of monitoring systems**

Both the quality of the receivables and the financial condition of the seller and servicer must be able to be monitored. In particular:

- (a) The correlation among the quality of the receivables and the financial conditions of the seller and the servicer must be assessed.
- (b) There must be in place internal policies and procedures adequately safeguarding against contingencies. Such internal policies and procedures must include the assignment of an internal risk rating to each seller and servicer

⁷⁶ In particular, quantification should reflect all information available to the purchasing bank regarding the quality of the underlying receivables, including data for similar pools provided by the seller, by the purchasing bank, or by external sources. The purchasing bank must determine whether the data provided by the seller are consistent with expectations agreed upon by both parties concerning, for example, the type, volume and on-going quality of receivables purchased. Where this is not the case, the purchasing bank is expected to obtain and rely upon more relevant data.

- (c) There must be clear and effective policies and procedures in place for determining seller and servicer eligibility. The bank or its agent must conduct and document periodic reviews of sellers and servicers. Such periodic reviews must seek to verify the accuracy of reports from the seller/servicer, detect fraud or operational weaknesses, and verify the quality of the seller's credit policies and servicer's collection policies and procedures.
- (d) The bank must have the ability to assess the characteristics of the receivables pool, including:
 - (i) over-advances;
 - (ii) history of the seller's arrears, bad debts, and bad debt allowances;
 - (iii) payment terms; and
 - (iv) potential contra accounts.
- (e) There must be effective policies and procedures in place for monitoring, on an aggregate basis, single-obligor concentrations both within and across receivables pools.
- (f) Timely and sufficiently detailed reports of receivables ageings and dilutions must be received to:
 - (i) ensure compliance with the bank's eligibility criteria and advancing policies governing purchased receivables; and
 - (ii) provide an effective means with which to monitor and confirm the seller's terms of sale and dilution.

4.306 **Effectiveness of work-out systems**

Systems and procedures must be in place for: detecting deterioration in the seller's financial condition at an early stage; detecting deterioration in the quality of the receivables at an early stage; and addressing emerging problems pro-actively. In particular:

- (a) There must clear and effective policies, procedures, and information systems in place to monitor compliance with:
 - (i) all contractual terms of the facility (including covenants, advancing formulas, concentration limits, early amortisation triggers, etc.); and
 - (ii) the internal policies governing advance rates and receivables eligibility.
- (b) Systems must be in place that track covenant violations and waivers as well as exceptions to established policies and procedures.
- (c) To limit inappropriate draws, effective policies and procedures must be in place for detecting, approving, monitoring, and correcting over-advances.

Effective policies and procedures must be in place for dealing with financially weakened sellers or servicers and/or deterioration in the quality of receivable pools. (These include, but are not necessarily limited to, early termination triggers in revolving facilities and other covenant protections, a structured and disciplined approach to dealing with covenant violations, and clear and effective policies and procedures for initiating legal actions and dealing with problem receivables.)

4.307 **Effectiveness of systems for controlling collateral, credit availability, and cash**

Clear and effective policies and procedures must be in place governing the control of receivables, credit, and cash. In particular:

- (a) Written internal policies must specify all material elements of the receivables purchase programme, including:
 - (i) the advance rates;
 - (ii) eligible collateral;
 - (iii) necessary documentation;
 - (iv) concentration limits; and
 - (v) how cash receipts are to be handled.
- (b) The elements identified in (a) of this section must take appropriate account of all relevant and material factors, including:
 - (i) the seller's/servicer's financial condition;
 - (ii) risk concentrations; and
 - (iii) trends in the quality of the receivables and the seller's customer base.
- (c) Internal systems must ensure that funds are advanced only against specified supporting collateral and documentation (such as servicer attestations, invoices, shipping documents, etc.).

4.308 **Compliance with the bank's internal policies and procedures**

There must be in place an internal process for assessing compliance with all critical policies and procedures. The process must include:

- (a) regular internal and/or external audits of all critical phases of the bank's receivables purchase programme.
- (b) verification of the separation of duties:
 - (i) between the assessment of the seller/servicer and the assessment of the obligor, and
 - (ii) between the assessment of the seller/servicer and the field audit of the seller/servicer; and

- (c) evaluations of back office operations, with particular focus on qualifications, experience, staffing levels, and supporting systems.

Validation of internal estimates

4.309 A robust system must be in place to validate the accuracy and consistency of rating systems, processes, and the estimation of all relevant risk components. The internal validation process must enable consistent assessment of the performance of internal rating and risk estimation systems.

4.310 Realised default rates must regularly be compared with estimated PD for each obligor grade.

If the AIRB approach is used, analogous analysis must be undertaken for LGD and EAD estimates.

Comparisons must make use of as long a period of historical data as possible. The methods and data used must be clearly documented. The analysis and documentation must be updated at least annually.

4.311 Other quantitative validation tools must be used and comparisons made with relevant external data sources. The data used must be appropriate to the portfolio, must be updated regularly, and must cover a relevant observation period.

Internal assessments of the performance of rating systems must be based on long data histories that cover a range of economic conditions and where possible one or more complete business cycles.

4.312 Quantitative testing methods and other validation methods must not vary systematically with the economic cycle. Changes in methods and data used must be clearly documented.

4.313 Internal standards must be documented for situations where realised PD, LGD and EAD deviate from estimates by enough to call into question the validity of the estimates. The standards must take account of systematic variability in default experiences (including, but not limited to, that associated with the business cycle). Where realised values continue to be higher than estimates, estimates must be revised upward to reflect the default and loss experience.

4.314 Where supervisory estimates of risk parameters are used, realised LGD and EAD must be compared with those set by the supervisors. The information on realised LGD and EAD should form part of the bank's assessment of economic capital.

Supervisory LGD and EAD estimates

4.315 If the foundation IRB approach is used but the above requirements for the use of internal estimates of LGD and EAD are not met, the bank must meet the minimum requirements described in the standardised approach to be allowed to recognise financial collateral as eligible for the purposes of calculating minimum capital requirements see BS2A. The bank must meet the following additional minimum requirements in order to be allowed to recognise additional collateral types.

Definition of eligibility of CRE and RRE as collateral

4.316 Eligible CRE and RRE collateral for the corporate, sovereign and bank IRB exposure classes are defined as:

- (a) collateral where the risk of the obligor is not materially dependent upon the performance of the underlying property or project, but rather on the underlying capacity of the obligor to repay the debt from other sources (such that repayment of the facility is not materially dependent on any cash flow generated by the underlying CRE/RRE serving as collateral); and
- (b) the value of the collateral pledged must not be materially dependent on the performance of the obligor.⁷⁷

4.317 Income producing real estate that falls under the SL exposure class must not be recognised as collateral for corporate exposures.

Operational requirements for eligible CRE/RRE

4.318 Subject to 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.

- (a) Legal enforceability:
 - (i) any claim on collateral taken must be legally enforceable in all relevant jurisdictions and legal requirements for establishing the bank's claim must be fulfilled;
 - (ii) the collateral agreement and the legal process must be such that the bank can realise the value of the collateral promptly.
- (b) Objective market value of collateral:
 - (i) the collateral must be valued at or less than the current fair value under which the property could be sold under private contract

⁷⁷ This latter requirement is not intended to preclude situations where purely macro-economic factors affect both the value of the collateral and the performance of the obligor.

between a willing seller and an arm's-length buyer on the date of valuation.

- (c) Frequent revaluation:
 - (i) the value of the collateral must be monitored and revalued frequently, and at least annually. More frequent monitoring and revaluing must be performed where the market is subject to significant changes in value.⁷⁸

Eligible collateral is limited to situations where the lender has first charge over the property.

4.319 Additional collateral management requirements are as follows:

- (a) there must be clear documentation of the types of CRE and RRE collateral accepted by the bank and of lending policies (advance rates) employed when this type of collateral is taken;
- (b) property taken as collateral must be adequately insured against damage or deterioration;
- (c) the extent of any permissible prior claims (e.g. tax) on the property must be monitored and accounted for on an ongoing basis; and
- (d) the risk of environmental liability arising in respect of the collateral must be monitored.

Requirements for recognition of financial receivables

4.320 Definition of eligible financial receivables

Eligible financial receivables are claims with an original maturity of one year or less where repayment will occur through the commercial or financial flows related to the underlying business operations of the obligor.⁷⁹ Eligible receivables do not include those from affiliates of the obligor or those associated with securitisations, sub-participations or credit derivatives.

4.321 Operational requirements – legal certainty

The legal mechanism by which collateral is given must be robust and ensure that the lender has clear rights over the proceeds from the collateral.

⁷⁸ Statistical methods of evaluation (e.g. reference to house price indices, sampling) may be used to update estimates or to identify collateral that may have declined in value and that may need re-appraisal. A qualified professional must evaluate the property when information indicates that the value of the collateral may have declined materially relative to general market prices or when a credit event, such as default, occurs.

⁷⁹ This includes both self-liquidating debt arising from the sale of goods or services linked to a commercial transaction and general amounts owed by buyers, suppliers, renters, national and local governmental authorities, or other non-affiliated parties not related to the sale of goods or services linked to a commercial transaction.

All steps necessary must be taken to fulfil requirements to ensure the enforceability of a security interest (for example, by registering a security interest with a registrar). There must be a framework that allows the potential lender to have a perfected first priority claim over the collateral.

All documentation used in collateralised transactions must be binding on all parties and legally enforceable in all relevant jurisdictions. Legal review must have verified that this conclusion is well founded. Further review must be undertaken as necessary to ensure continuing enforceability.

The collateral arrangements must be properly documented, with a clear and robust procedure for the timely collection of collateral proceeds. Procedures should ensure that any legal conditions required for declaring the default of the customer and timely collection of collateral are observed. In the event of the obligor's financial distress or default, the bank should have legal authority to sell or assign the receivables to other parties without the consent of the receivables' obligors.

4.322 **Operational requirements – Risk management**

There must be a sound process in place for determining the credit risk in the financial receivables taken as collateral. The process must include, among other things, analyses of the obligor's business and industry (e.g. effects of the business cycle) and the types of customers with whom the obligor does business. Where the bank relies on the obligor to review the credit risk of its customers, the bank must review the soundness and credibility of the obligor's credit policy.

The margin between the amount of the exposure and the value of the receivables must reflect all appropriate factors. Such factors include the cost of collection, concentration within the receivables pool pledged by an individual obligor, and potential concentration risk within the bank's total exposures.

There must be in place a continual and effective monitoring process for the financial receivables taken as collateral.⁸⁰

Observance of the bank's overall concentration limits must be monitored. Compliance with loan covenants, environmental restrictions, and other legal requirements must be reviewed regularly.

The receivables pledged by an obligor must be diversified and the credit risk associated with the receivables should not be unduly highly correlated with the credit risk of the obligor. Where the correlation is high the attendant risks should be taken into account in the setting of margins for the collateral pool as a whole.⁸¹ Receivables from affiliates of the obligor (including subsidiaries and employees) must not be recognised as risk mitigants.

⁸⁰ This process may include, as appropriate and relevant: ageing reports; control of trade documents; borrowing base certificates; frequent audits of collateral; confirmation of accounts; control of the proceeds of accounts paid; analyses of dilution (which refers to the reduction of the amount of receivables caused by cash or non-cash credits given by the obligor to the issuers); and regular financial analysis of both the obligor and the issuers of the receivables, especially in the case when a small number of large-sized receivables are taken as collateral.

⁸¹ The correlation might be high, for example, where some issuers of the receivables are reliant on the obligor for their viability or the obligor and the issuers belong to a common industry,

There must be a documented process for collecting receivable payments in distressed situations. The requisite facilities for collection should be in place, even when the obligor normally makes collections.

Requirements for recognition of leasing

- 4.323 Leases that do not give rise to residual value risk will be accorded the same treatment as unsecured corporate exposures. Residual value risk is the bank's exposure to potential loss due to the fair value of the equipment declining below its residual estimate at lease inception.
- 4.324 Leases that give rise to residual value risk must be treated in the following manner:
- (a) the discounted lease payment stream must receive a risk weight appropriate to the lessee's PD and the estimate of LGD; and
 - (b) the residual value must be risk-weighted at 100%.

PART 5 – FUNDS MANAGEMENT AND SECURITISATION

- 5.0 Banks may be involved in funds management and securitisation through activities such as:
- (a) originating or supplying assets to special purpose vehicles;
 - (b) marketing funds management and securitisation products through their branch network;
 - (c) acting as a servicing agent ;
 - (d) acting as a fund manager;
 - (e) sponsoring or establishing such arrangements.
- 5.1 Banks may be exposed to risks as a result of their association with funds management and securitisation activities. For the purposes of this policy, "association" means any relationship other than the provision of normal banking or commercial services on a fully arm's length basis. Some of these risks arise from implicit or "moral" obligations, rather than formal legal obligations. For example, a bank may feel an obligation to provide support to special purpose vehicles set up to conduct securitisation or funds management activities, because it considers that its own reputation and/or customer base will suffer if support is not provided. To the extent that a bank creates a degree of separation between itself and its funds management and securitisation activities, these implicit risks can be reduced.
- 5.2 Banks may face more explicit forms of risk where they provide credit enhancements to special purpose vehicles. Examples of credit enhancements include (but are not limited to) the following:
- (a) holding a subordinated class of securities issued by the special purpose vehicle;
 - (b) provision of financial services (e.g. interest rate swaps) on other than arm's length terms and conditions;
 - (c) provision of risk insurance;
 - (d) provision of guarantees;
 - (e) over collateralisation;
 - (f) repurchase or replacement of non-performing loans;
 - (g) a one-off gift or a long term loan, maturing after other securities issued by the special purpose vehicle;

- (h) payment of expenses incurred by the fund;
 - (i) management fee structures which vary with the level of non performing assets held by a special purpose vehicle or with the capital value of a managed fund such that there is potential for fees to fall to a level which would be below that which the bank would expect to receive if fees were set at market levels on arm's length terms and conditions.
- 5.3 Banks may also face funding risk as a result of involvement in securitisation schemes. This can occur if associated special purpose vehicles issue securities with maturities which are shorter than those of the underlying assets. In such cases there is a risk that the bank will be required to fund some, or all of, the underlying assets when the securities mature.
- 5.4 A bank must treat a special purpose vehicle as part of the banking group (or the registered bank for solo capital calculation) for the purposes of the capital adequacy framework if:
- (a) the banking group (or bank for solo capital) is required by generally accepted accounting practice to consolidate the funds management or securitisation special purpose vehicle for the purposes of its group financial statements; or
 - (b) the special purpose vehicle is a covered bond SPV as defined in the Reserve Bank of New Zealand (Covered Bonds) Amendment Bill and following its passage the Reserve Bank of New Zealand Act.
- 5.5 Where consolidation of a funds management or securitisation special purpose vehicle is not required by section 5.4 the following treatment will apply for capital purposes. If there is insufficient separation between the bank and associated funds management and securitisation activities, the bank has provided some form of credit enhancement to an associated scheme, or the bank retains funding risk as a result of its involvement in a securitisation, the bank is required to hold capital against the assets of the scheme, in accordance with sections 5.6, 5.8 and 5.11.

Explicit Risk

- 5.6 Where a bank provides any form of credit enhancement to an associated special purpose vehicle and if the obligation can be quantified and does not take the form of a guarantee' the bank may choose one of the following three options:
- (a) deduct the maximum level of its obligation to provide support from capital;
 - (b) expense the full amount of its obligation at the time its relationship with the special purpose vehicle commences; or
 - (c) consolidate the assets of the special purpose vehicle for the purposes of calculating its capital adequacy ratios.

Where the maximum extent of the bank's obligation cannot be readily quantified or where the credit support takes the form of a full or partial guarantee, the assets of the fund should be fully consolidated for capital adequacy purposes.

- 5.7 The credit enhancement will be treated as a 100 % risk weighted exposure of the bank where banks are providing credit enhancements to securitisation special purpose vehicles and:
- (a) the bank and parties related to the bank are not associated with the special purpose vehicle; and
 - (b) the credit enhancement is provided on arm's length terms and conditions and at market prices.

Implicit Risk

- 5.8 Where any of the following minimum separation requirements are not met, a bank will be required to fully consolidate the assets of an associated special purpose vehicle for capital adequacy purposes.
- (a) Prospectuses and brochures for funds management and securitisation products must include clear, prominent disclosures of the following:
 - (i) that the securities do not represent deposits or other liabilities of the bank;
 - (ii) that the securities are subject to investment risk including possible loss of income and principal invested;
 - (iii) that the bank does not guarantee (either partially or fully) the capital value or performance of the securities.

Note: however, that these requirements do not override or replace any of the issuer's obligations under the Securities Act and Regulations.

- (b) Unless the bank is treating financial services provided to a special purpose vehicle as a credit enhancement, the bank's disclosure statements must include a statement that financial services (including funding and liquidity support) provided by the bank (and any of its subsidiaries) are on arm's length terms and conditions and at fair value. Where the bank or its subsidiaries have purchased securities issued by a special purpose vehicle during the reporting period, or have purchased assets from a special purpose vehicle, the bank's disclosure statements must include a statement that these were purchased at fair value and on arm's length terms and conditions.
- (c) When securities are initially issued, investors must be required to sign an explicit acknowledgement that the securities do not constitute bank deposits or liabilities and that the bank does not stand behind the capital value and performance of the securities.
- (d) There must either be an independent trustee or there must be clear, prominent disclosure in all prospectuses, brochures and application forms relating to the

scheme of whether or not there is a trustee, and, where applicable, that the trustee is not independent of the bank.

- (e) Where the bank or its subsidiaries purchase assets from a special purpose vehicle the purchases must take place at fair value and on arm's length terms and conditions.
- (f) Where the bank or its subsidiaries provide funding or liquidity support to an associated special purpose vehicle, or purchase securities issued by an associated special purpose vehicle, the following conditions must be met:
 - (i) Such transactions take place on arm's length terms and conditions at fair value.
 - (ii) Funding (including funding provided by purchase of securities issued by the special purpose vehicle) does not exceed 5% of the value of securities issued by the special purpose vehicle.

5.9 In addition, aggregate funding provided to:

- (a) all associated special purpose vehicles not consolidated in terms of sections 5.6, 5.8 or 5.11 (including funding provided by the purchase of securities issued by a special purpose vehicle); and
- (b) all affiliated insurance groups (see part 6 for further details);

must not exceed 10% of the bank's Common Equity Tier 1 capital. Where the 10% limit is breached, the full amount of this aggregate funding is required to be deducted from Common Equity Tier 1 capital (see section 2.9).

5.10 While there is no requirement to hold capital against funds management and securitisation activities where the above minimum separation has been achieved, banks will need to take into account the fact that it is very difficult to totally eliminate implicit credit risk. Thus banks will need to ensure that their capital adequacy policies take account of any residual implicit risk, particularly where funds management and securitisation activities are significant in size relative to the bank's other activities.

Funding Risk

5.11 A bank may face funding risk as a result of its involvement in a securitisation scheme if the securities issued by the special purpose vehicle have a shorter maturity profile than the assets against which the securities have been issued. Where a bank is subject to funding risk as a result of its involvement in a securitisation scheme it will be required to fully consolidate the securitised assets for capital adequacy purposes.

PART 6 – INSURANCE BUSINESS

6.0 The role of distributing or marketing insurance products underwritten by affiliated insurance entities may involve an exposure to implicit risk, ie, to reputational risks and to moral recourse as a result of a close association with those affiliated entities. Implicit risk can be reinforced if explicit support is provided to the insurance entity. To the extent that the banking group and any affiliated insurance entities create a degree of separation between each other, these risks can be reduced.

6.1 In this document:

- (a) “Insurance entity” means any entity whose business predominantly consists of the conduct of insurance business as defined in registered banks’ conditions of registration;
- (b) “Affiliated insurance entity” means any insurance entity which is not a member of the New Zealand banking group, but:
 - (i) which is either the ultimate parent of the New Zealand banking group;
 - (ii) or which is a subsidiary of the ultimate parent of the New Zealand banking group;
 - (iii) or which is an insurance entity in which the ultimate parent of the New Zealand banking group has an interest as an associate, or a direct or indirect interest as a party to a joint venture;

and whose financial products are distributed or marketed by the New Zealand banking group;

- (c) “Affiliated insurance group” means any affiliated insurance entity and all that entity’s subsidiaries.

For the purposes of these definitions, the terms “parent”, “subsidiary”, “associate” and “joint venture” are determined in accordance with GAAP, as defined in the Financial Reporting Act 1993.

Credit Enhancements

6.2 The full amount of any credit enhancements provided by the banking group to any member of an affiliated insurance group is required to be either fully expensed, or deducted from Common Equity Tier 1 capital. Examples of credit enhancements include, but are not limited to, the following:

- (a) Holdings of, or investments in, equity instruments or subordinated classes of financial instruments.

- (b) Provision of exchange rate, interest rate, or other market related contracts for hedging purposes on other than arm's length terms and conditions. For this purpose, market related contracts which are not traded in an active and liquid market, or whose data inputs are not taken from an active and liquid market, are regarded as credit enhancements.
- (c) Provision of funding and liquidity support on other than arm's length terms and conditions.
- (d) Guarantees and other risk assumption techniques which provide support for the asset risks of any member of the insurance group (for example, asset credit risks, equity risks, or property price risks), other than market related contracts on arms length terms and conditions.
- (e) Asset transfers from the banking group to any member of the affiliated insurance group at less than fair value;
- (f) Repurchase or replacement of non-performing assets.
- (g) Payment of expenses or liabilities.

Implicit Risk – Minimum Separation Requirements

- 6.3 Where any of the following minimum requirements are not met, the whole amount of any funding exposures which the banking group has to the affiliated insurance group is required to be deducted from Common Equity Tier 1 capital:
- (a) Investment statements, prospectuses and brochures for insurance products must include clear, prominent disclosures that the bank and its subsidiaries do not guarantee the affiliated entity which is the issuer of the products, nor any of that entity's subsidiaries, nor any of the products issued by that affiliated insurance group.
 - (b) Where the insurance products are subject to the Securities Act 1978, investment statements, prospectuses and brochures must additionally include clear and prominent disclosures that:
 - (i) the policies do not represent deposits or other liabilities of the bank or its subsidiaries;
 - (ii) the policies are subject to investment risk, including possible loss of income and principal;
 - (iii) the bank and its subsidiaries do not guarantee the capital value or performance of the policies.
 - (c) At initial issue to an insurance product purchaser, the purchaser must be required to sign an explicit acknowledgement that the bank and its subsidiaries do not guarantee the affiliated entity which is the issuer of the products, nor any of that entity's subsidiaries, nor any of the products issued by that affiliated insurance group. Where an insurance product is subject to the Securities Act 1978, the investor must also sign an explicit

acknowledgement that the policies do not represent deposits or other liabilities of the bank or its subsidiaries, and that the banking group does not stand behind the capital value or performance of the policies.

- (d) Asset purchases by the banking group from an affiliated insurance group must take place on arms-length terms and conditions, and at fair value.
- (e) Unless a bank is treating financial services provided to an affiliated insurance group as a credit enhancement, the bank's disclosure statements must include a statement that financial services (including funding and liquidity support) provided by the bank or any of its subsidiaries are made on arms-length terms and conditions and at fair value. Similarly, where the bank or its subsidiaries have purchased securities issued by an affiliated insurance group, or have purchased assets from it during the reporting period, the bank's disclosure statement must include a statement that these were purchased at fair value, and on arm's length terms and conditions.
- (f) Funding and liquidity support provided by the banking group to each affiliated insurance group must not exceed 5% of the total consolidated assets of that insurance group, and must be provided on arm's length terms and conditions, and at fair value.
- (g) Aggregate funding provided to all affiliated insurance groups (see section 6.1) and to all associated funds management and securitisation vehicles (see section 5.1) must not exceed 10% of the bank's Common Equity Tier 1 capital.

6.4 For the purposes of section 6.3, funding and liquidity support provided by the banking group to any member of the affiliated insurance group comprises the following items:

- (a) its share of policyholder liabilities;
- (b) other than for credit exposures arising from market related contracts, any claims which represent senior credit exposures;
- (c) the undrawn portion of any commitments to provide funding or purchase assets;
- (d) the full amount of direct credit substitutes.

6.5 This definition of funding does not include credit exposures arising from the provision of market related contracts used for hedging price movements, such as interest rate swaps, or foreign exchange risk hedging instruments (historical rate rollovers excepted). Nor will it include investments in equity instruments or other classes of subordinated financial instruments, as these are required to be deducted from Common Equity Tier 1 capital (see section 2.9 and section 6.2). However, it will include loans, overdrafts, revolving credit lines, money market placements, investments in senior ranking securities, forward asset purchases, guarantees of borrowings, and similar items.

- 6.6 In line with the definition of an affiliated insurance group, where there are a number of insurance entities within a group of insurance companies, the funding limits relate to each operating life insurance or general insurance entity (and their subsidiaries) within the group. Therefore, if one operating insurance entity is controlled by another, and the banking group has a marketing role in relation to each of those operating entity's products, the funding requirements apply on a tiered sub-group/group basis.
- 6.7 The funding limit does not apply to the holding companies, parents, or other related parties of these affiliated insurance groups, although any credit exposures to those entities are subject to the applicable connected person exposure limits contained in registered banks' conditions of registration. Likewise, all credit exposures to affiliated insurance groups, including funding exposures, are still subject to those connected person exposure limits.
- 6.8 Even where the above requirements are met, banks will need to take into account the fact that it is very difficult to totally eliminate the implicit risks that might arise from the marketing of an affiliated insurance group's products. Accordingly, banks should ensure that their capital adequacy policies take account of any residual implicit risk, particularly where the volume of insurance products distributed is significant in relation to the banking group's other activities.

PART 7 – MARKET RISK

7.0 This part sets out the method of measuring capital requirements for market risk exposure. The methodology measures potential exposure to economic losses arising from adverse movements in interest rates, equity prices and exchange rates.

Definitions

7.1 The following definitions apply in this part:

- (a) “Aggregate equity exposure” means aggregate exposure to equity risk in all currencies.
- (b) “Aggregate foreign currency exposure” means aggregate exposure to foreign currency risk in all currencies other than New Zealand dollars.
- (c) “Aggregate interest rate exposure” means aggregate exposure to interest rate risk in all currencies.
- (d) “Core rate insensitive asset” means a rate insensitive asset, or part thereof, the amount of which does not temporarily increase and decrease with a regular seasonal pattern.
- (e) “Core rate insensitive liability” means a rate insensitive liability, or part thereof, the amount of which does not temporarily increase and decrease with a regular seasonal pattern.
- (f) “Core rate insensitive product” means either or both of a core rate insensitive asset or a core rate insensitive liability.
- (g) “Equity exposure” means the amount of the change in the economic value of equity instruments that are financial assets and financial liabilities of the banking group in a single currency, which would occur as a result of a change in the price of equity instruments in that currency.
- (h) “Equity” has the same meaning as in the Institute of Chartered Accountants of New Zealand Statement of Concepts for General Purpose Financial Reporting, as amended from time to time.
- (i) “Equity instrument” has the same meaning as in NZ IAS 32 Disclosure and Presentation of Financial Instruments, as amended from time to time.
- (j) “Equity risk” means the risk arising from changes in the prices of equity instruments.
- (k) “Financial asset” has the same meaning as in NZ IAS 32 Disclosure and Presentation of Financial Instruments, as amended from time to time.
- (l) “Financial instrument” has the same meaning as in NZ IAS 32 Disclosure and Presentation of Financial Instruments, as amended from time to time.

- (m) “Financial liability” has the same meaning as in NZ IAS 32 Disclosure and Presentation of Financial Instruments, as amended from time to time.
- (n) “Foreign currency exposure” means the change in the economic value of the financial assets and financial liabilities in a single foreign currency that would occur as a result of a change in the exchange rate applicable to that foreign currency.
- (o) “Foreign currency risk” means the risk that the value of a financial instrument will fluctuate due to changes in foreign exchange rates.
- (p) “Forward rate agreement” means an agreement to set future borrowing and lending interest rates for a specified period.
- (q) “Interest rate exposure” means the change in the economic value of the financial assets (excluding equity instruments) and financial liabilities (excluding equity instruments) in a single currency that would occur as a result of a change in interest rates in that currency.
- (r) “Interest rate repricing date” as that term applies to a financial instrument or to a proportion of a financial instrument, means the earlier of:
 - (i) the next interest rate reset date (being the date on which the rate of interest payable in respect of the financial instrument can or will alter); and
 - (ii) the date on which the principal sum is due and payable or, if no principal sum is due and payable, the maturity date of the instrument.
- (s) “Interest rate risk” is the risk that the value of a financial instrument will fluctuate due to changes in market interest rates.
- (t) “Market risk exposure” means exposure to any, or all, of equity risk, foreign currency risk and interest rate risk.
- (u) “Rate insensitive asset” means a financial asset, or part thereof, the amount of which is unlikely to increase or decrease as a result of a material change in market interest rates if the interest rate applicable to that asset (which may be zero) does not change or does not change materially.
- (v) “Rate insensitive liability” means a financial liability, or part thereof, the amount of which is unlikely to increase or decrease as a result of a material change in market interest rates if the interest rate applicable to that financial liability (which may be zero) does not change or does not change materially.
- (w) “Rate insensitive product” means either or both of a rate insensitive asset or a rate insensitive liability.
- (x) “Seasonal rate insensitive asset” means a rate insensitive asset the amount of which temporarily increases and decreases with a regular seasonal pattern. No more than 20% of rate insensitive assets may be treated as seasonal rate insensitive assets.

- (y) “Seasonal rate insensitive liability” means a rate insensitive liability the amount of which temporarily increases and decreases with a regular seasonal pattern. No more than 20% of rate insensitive liabilities may be treated as seasonal rate insensitive liabilities.
- (z) “Seasonal rate insensitive product” means either or both of a seasonal rate insensitive liability or a seasonal rate insensitive liability.

Aggregate Capital Charge for Interest Rate Exposure

7.2 The aggregate capital charge for interest rate exposure is calculated by adding together the absolute values of interest rate exposure in each currency.

7.3 Interest rate exposure in a single currency is the sum of exposure, in that currency, to:

- (a) directional interest rate risk;
- (b) vertical disallowance; and
- (c) horizontal disallowance.

7.4 Exposure to Directional Interest Rate Risk in a Single Currency

- (a) Exposure to directional interest rate risk in a single currency is derived by subtracting the aggregate change in the value of financial liabilities (excluding equity instruments) arising from a directional change in interest rates in that currency from the aggregate change in the value of financial assets (excluding equity instruments), arising from a directional change in interest rates in that currency.
- (b) The value of a financial instrument is:
 - (i) in the case of an unrecognised financial instrument or a recognised financial instrument which is a market related contract, the face or contract amount of the financial instrument expressed in New Zealand dollars using the relevant spot exchange rate; and
 - (ii) in the case of other financial instruments, the carrying amount of the financial instrument expressed in New Zealand dollars using the relevant spot exchange rate.
- (c) The change in the value of a financial instrument is derived by multiplying the value, or proportion of the value, of the financial instrument allocated to each of the applicable time bands specified in Table 10.1, in accordance with subsection (d), by the risk weight specified for that time band in Table 10.1.

Table 10.1

Risk weights for applicable Time Bands

Time Bands	Up to 1 month	1-6 months	6-12 Months	1-2 years	2-4 years	4-6 years	6-10 Years	Over 10 years
Interest Rate Changes (%)	1.0	1.0	1.0	0.9	0.8	0.7	0.6	0.6
Risk Weights(%)	0	0.3	0.7	1.3	2.0	3.0	3.5	4.4

- (d) The value of each financial instrument, or a proportion of it, must be allocated to the time bands specified in Table 10.1 in a manner that reflects the date on which the interest rate applicable to the financial instrument, or proportion of the financial instrument, can be reset, or the date at which the principal, or a proportion of the principal, will be paid.
- (e) Notwithstanding subsection (d):
- (i) the value of, or the appropriate proportion of the value of, those Financial Instruments which meet the netting criteria set out in section 143 may be excluded from the application of subsection (d);
 - (ii) the aggregate value of all core rate insensitive assets and of all core rate insensitive liabilities must be allocated to the time bands specified in Table 10.2 in accordance with the percentages set out in Table 10.2; and
 - (iii) The aggregate value of all seasonal rate insensitive assets and of all seasonal rate insensitive liabilities must be allocated, in a manner that reflects the dates on which seasonal increases and decreases are expected to occur, to the following time bands:
 - (1) up to 1 month,
 - (2) 1-6 months, or
 - (3) 6 -12 months.

Table 10.2

Allocation of the value of core rate insensitive products across time bands

Time Bands	Up to 1 Month	1–6 Months	6–12 Months	1–2 Years	2–4 Years	4–6 Years
Percentage of aggregate value	5%	5%	10%	20%	40%	20%

7.5 Netting criteria

Matched positions may be excluded if:

- (a) the matched position relates to financial instruments with the same issuer, coupon, currency and maturity; or
- (b) —
 - (i) with respect to matched positions comprising futures, the underlying financial instruments to which the futures relate:
 - are for the same product;
 - have the same value or notional value;
 - are denominated in the same currency; and
 - mature within seven days of each other; or
 - (ii) with respect to matched positions comprising swaps (including separate legs of different swaps) or forward rate agreements (FRAs), the underlying financial instruments to which the swaps or FRAs relate:
 - are for the same product;
 - have the same value or notional value;
 - are denominated in the same currency;
 - have reference rates (for floating rate positions) which are identical;
 - have coupon rates which are identical or which do not differ by more than 15 basis points; and
 - have a time to run before the next Interest Rate Repricing Date within the following limits:

Table 10.3
Swaps and FRAs

<i>Earliest Repricing Date</i>	<i>Limits</i>
Less than one month hence:	Same day
Between on month and one year hence:	Within seven days
More than one year hence:	Within thirty days

or

- (iii) with respect to matched positions comprising forwards, the underlying financial instruments to which the forwards relate:
- are for the same product;
 - have the same value or notional value;
 - are denominated in the same currency; and
 - have a time to run before the next Interest Rate Repricing Date within the following limits:

Table 10.4
Forwards

<i>Earliest Repricing Date</i>	<i>Limits</i>
Less than one month hence:	same day
Between one day and one year hence:	within seven days
More than one year hence:	within thirty days.

7.6 The Amount of Vertical Disallowance in a Single Currency:

- (a) The amount of vertical disallowance in a single currency is the sum of the vertical disallowances for each of the time bands specified in Table 10.1.
- (b) The amount of vertical disallowance in a time band is calculated as follows:
 - (i) derive the risk weighted matched position in the time band (which is either the lesser of the sum of the absolute values of the

financial assets and the sum of the absolute values of the financial liabilities in that time band, or, if those sums are equal, that sum, multiplied by the risk weight for that time band);

- (ii) derive the risk weighted value of the rate insensitive products in that time band (which is the sum of the absolute values of the rate insensitive assets and rate insensitive liabilities in that time band multiplied by the risk weight for that time band);
- (iii) if the risk weighted matched position is less than or equal to the risk weighted value of the rate insensitive products in a time band, then the vertical disallowance amount for that time band is the risk weighted matched position multiplied by 20%;
- (iv) if the risk weighted matched position is greater than the risk weighted value of the rate insensitive products in a time band, then the vertical disallowance amount for that time band is:
 - (A) the risk weighted value of the rate insensitive products multiplied by 20%; plus
 - (B) the difference between the risk weighted matched position and the risk weighted value of the rate insensitive products, multiplied by 5%.
- (c) The vertical disallowance in a currency shall have the same sign (positive or negative) as the directional interest rate risk calculated for that currency.

7.7 **The Amount of Horizontal Disallowance in a Single Currency:**

- (a) The amount of horizontal disallowance in a single currency is calculated as follows:

Allocate the time bands specified in Table 10.1 to the three time zones specified in Table 10.5:

Table 10.5
Time zones

<i>Time Bands</i>	<i>Time Zones</i>
Up to one month	Zone 1
1-6 months	
6-12 months	
1-2 years	Zone 2
2-4 years	
4-6 years	Zone 3
6-10 years	
Over 10 years	

- (b) Calculate the amount of the intra-zone disallowance in each time zone as follows:
- (i) derive the risk weighted net position in each time band (which is the amount of the risk weighted financial assets less the amount of the risk weighted financial liabilities in that time band). If the risk weighted net position in a time band is positive, this is a risk weighted long position and if it is negative, this is a risk weighted short position;
 - (ii) derive the aggregate risk weighted long position in each time zone (which is the sum of any risk weighted long positions in the time bands in that time zone) and the aggregate risk weighted short position in each time zone (which is the sum of any risk weighted short positions in the time bands in that time zone);
 - (iii) derive the matched position in each time zone (which is either the lesser of the absolute value of the aggregate risk weighted long position and the absolute value of the aggregate risk weighted short position in that time zone, or, if the absolute values of those positions are equal, that absolute value), if any;
 - (iv) the amount of intra-zone disallowance in a time zone is the value of the matched position in that time zone multiplied by the disallowance factor for that time zone specified in Table 10.6. If there is no matched position in a time zone, the amount of the intra-zone disallowance in that time zone is zero.

Table 10.6

Intra-zone disallowances

<i>Time Zones</i>	<i>Disallowance Factors</i>
Zone 1	40%
Zone 2	30%
Zone 3	30%

- (c) Calculate the amount of the inter-zone disallowances as follows:
- (i) inter-zone disallowances are derived in the following order: time zones 1 and 2, 2 and 3, and 1 and 3. The inter-zone disallowance factors which must be used to derive the inter-zone disallowance amounts are specified in Table 10.7;

Table 10.7

Inter-zone disallowances

<i>Time Zones</i>	<i>Disallowance Factors</i>
Zones 1 and 2	40%
Zones 2 and 3	40%
Zones 1 and 3	100%

- (ii) derive the residual position in each time zone (which is the net amount of the aggregate risk weighted long position and the aggregate risk weighted short position). If the residual position is positive this is a residual long position and if it is negative this is a residual short position;
- (iii) there is a matched position between time zones 1 and 2 if there is a residual long position in one time zone and a residual short position in the other. The matched position is either the smaller of the absolute value of the residual long position and the absolute value of the residual short position, or, if the absolute values of those positions are equal, that absolute value. If there is no matched position, the amount of horizontal disallowance is zero. If there is a matched position, then the amount of horizontal disallowance between time zones 1 and 2 is the value of the

matched position multiplied by the disallowance factor for time zones 1 and 2 specified in Table 10.7;

- (iv) derive the net residual position in time zone 2, by taking the difference between the absolute value of the residual position in time zone 2 and the matched position between time zones 1 and 2, and allocating to that amount, if any, the sign of the residual position in time zone 2. If the net residual position in time zone 2 is positive this is a net residual long position and if it is negative this is a net residual short position;
- (v) there is a matched position between time zones 2 and 3 if there is a net residual long position in time zone 2 and a residual short position in time zone 3 or a net residual short position in time zone 2 and a residual long position in time zone 3. The matched position is either the smaller of the absolute value of those residual positions, or, if the absolute values of those positions are equal, that absolute value. If there is no matched position, the amount of the horizontal disallowance is zero. If there is a matched position then the amount of horizontal disallowance between time zones 2 and 3 is the value of the matched position multiplied by the disallowance factor for time zones 2 and 3 specified in Table 10.7;
- (vi) derive the net residual position in time zone 1 and in time zone 3:
- in time zone 1, by taking the difference between the absolute value of the residual position in time zone 1 and the matched position between time zones 1 and 2, and allocating to that amount, if any, the sign of the residual position in time zone 1;
 - in time zone 3, by taking the difference between the absolute value of the residual position in time zone 3 and the matched position between time zones 2 and 3, and allocating to that amount, if any, the sign of the residual position in time zone 3,
- (if the net residual position in a time zone is positive this is a net residual long position and if it is negative this is a net residual short position);
- (vii) there is a matched position between time zones 1 and 3 if there is a net residual long position in one time zone and a net residual short position in the other. The matched position is either the smaller of the absolute value of the net residual long position and the absolute value of the net residual short position, or, if the absolute values of those positions are equal, that absolute value. If there is no matched position, the amount of horizontal disallowance is zero. If there is a matched position then the amount of horizontal disallowance between time zones 1 and 3 is the value of the matched position multiplied by the disallowance factor for time zones 1 and 3 specified in Table 10.7.

- (d) The amount of the horizontal disallowance in a single currency is the aggregate of the amounts of intra-zone disallowances and inter-zone disallowances in that currency.
- (e) The horizontal disallowance in a currency shall have the same sign (positive or negative) as the directional interest rate risk calculated for that currency.

7.8 **Aggregate capital charge for interest rate exposure for all currencies**

The aggregate capital charge for interest rate exposure is the greater of the absolute value of the sum of any positive interest rate exposures and the absolute value of the sum of any negative interest rate exposures.

Aggregate Capital Charge for Foreign Currency Exposure

7.9 **Capital charge for Foreign Currency Exposure in a Single Foreign Currency**

- (a) Subject to subsections (b) and (d), the capital charge for foreign currency exposure in a single foreign currency is derived by subtracting the aggregate value of financial liabilities (whether recognised or unrecognised) in that foreign currency from the aggregate value of the financial assets (whether recognised or unrecognised) in that foreign currency and multiplying the result by 0.08.
- (b) Subject to subsection (c), the value of a financial instrument is either:
 - (i) —
 - in the case of an unrecognised financial instrument and a recognised financial instrument which is a market related contract, the face or contract amount of the financial instrument expressed in New Zealand dollars using the relevant spot exchange rate; and
 - in the case of other financial instruments, the carrying amount of the financial instrument expressed in New Zealand dollars using the relevant spot exchange rate; or
 - (ii) the present value of that financial instrument expressed in New Zealand dollars using the relevant spot exchange rate.
- (c) Notwithstanding subsection (b) the value of options in a single foreign currency shall be the delta equivalent value.
- (d) Financial Instruments which have been issued by associates of the registered bank or which have been included in the capital of the banking group shall not be included in the calculation of foreign currency exposure.

7.10 **Aggregate capital charge for foreign currency exposure**

Aggregate capital charge for foreign currency exposure is the greater of the sum of any positive capital charges for foreign currency exposure and the

absolute value of the sum of any negative capital charges for foreign currency exposures.

Aggregate Capital Charge for Equity Exposure

7.11 Capital Charge for Equity Exposure in a single currency

- (a) The capital charge for equity exposure in a single currency is derived by subtracting the aggregate amount of the value of all of the equity instruments (whether recognised or unrecognised) in that currency that are financial liabilities from the aggregate amount of the value of all the equity instruments (whether recognised or unrecognised) in that currency that are financial assets and multiplying the result by 0.08.
- (b) Notwithstanding subsection (a), the value of equity instruments issued by associates of the registered bank shall not be included in the calculation of the banking group's equity exposure.
- (c) Subject to subsection (d), the value of an equity instrument is:
 - (i) in the case of an unrecognised equity instrument and a recognised equity instrument which is a market related contract, the face or contract amount of the equity instrument expressed in New Zealand dollars using the relevant spot exchange rate; and
 - (ii) in the case of other equity instruments, the carrying amount of the equity instrument expressed in New Zealand dollars using the relevant spot exchange rate.
- (d) Notwithstanding subsection (c), the value of:
 - (i) a net equity futures position is the marked-to-market value of the notional underlying equity position; and
 - (ii) a net equity option position is the delta equivalent value.

7.12 Aggregate capital charge for equity exposure

The aggregate capital charge for equity exposure is the sum of the absolute values of the capital charge for equity exposures in each currency.

7.13 Total capital charge for market risk exposure

The total capital charge for market risk exposure is the sum of the aggregate capital charge for equity exposure, the aggregate capital charge for foreign currency exposure and the aggregate capital charge for interest rate exposure for all currencies.

PART 8 – ADVANCED MEASUREMENT APPROACH FOR OPERATIONAL RISK

Introduction

- 8.1 This part sets out the Advanced Measurement Approach (AMA) for determining capital requirements for operational risk.

Definition of operational risk

- 8.2 Operational risk is defined as the risk of loss resulting from inadequate or failed internal processes, people or systems or from external events. Operational risk includes legal risk but not strategic and reputational risk. Legal risk includes, but is not limited to, exposure to fines, penalties, or punitive damages resulting from regulatory actions, as well as private settlements.

Regulatory capital requirement for operational risk

- 8.3 A registered bank approved by the Reserve Bank to use the AMA must use its own internal model to determine its banking group operational risk regulatory capital requirement.
- 8.3A A registered bank approved by the Reserve Bank to use the AMA may seek approval from the Reserve Bank to apply the AMA to the calculation of its solo operational risk capital requirement.
- 8.3B For the purpose of calculating its registered bank solo capital adequacy ratios, a registered bank approved by the Reserve Bank to use the AMA must calculate its operational risk solo capital requirement as follows:
- (a) if the registered bank has obtained approval from the Reserve Bank to apply the AMA to the calculation of its solo operational risk capital requirement, the registered bank must use its own internal model to determine its solo operational risk regulatory capital requirement;
 - (b) otherwise the registered bank must use the following formula:

Solo operational risk capital requirement =

$$\text{(Group operational risk capital requirement)} \times \frac{\text{(Solo other risks capital requirement)}}{\text{(Group other risks capital requirement)}}$$

where

$$\text{Other risks capital requirement} = 8\% \times \text{scalar} \times (\text{risk weighted on and off balance sheet credit exposures}) + \text{total capital charge for market risk exposure} + 8\% \times \text{supervisory adjustment}$$

Requirements for banks using the AMA for operational risk

8.4 A registered bank using the AMA for operational risk must meet the qualitative and quantitative requirements set out in the following sections:

- (a) The qualitative requirements cover the following areas:
 - (i) Role of the board of directors;
 - (ii) Sufficient resources;
 - (iii) Independent operational risk management function;
 - (iv) Compliance arrangements;
 - (v) Documentation;
 - (vi) Internal reporting of operational risk information;
 - (vii) Integration of the operational risk measurement system into day-to-day operational risk management; and
 - (viii) External/internal audit.
- (b) The quantitative requirements cover the following areas:
 - (i) AMA soundness standard;
 - (ii) Treatment of inter-jurisdictional diversification benefits;
 - (iii) Detail criteria on internal data, external data, scenario analysis, factors that throw light on the business environment and internal control systems, and operational risk mitigation.

Qualitative requirements

Role of the board of directors

- 8.5 The board of directors must be responsible for overseeing the registered bank's overall operational risk profile and for approving the operational risk management framework.

Sufficient resources

- 8.6 The registered bank must have sufficient resources in major business lines, control and audit to ensure that its operational risk management framework operates effectively on a continuing basis.

Independent operational risk management function

- 8.7 Responsibility for the design and implementation of the registered bank's operational risk management framework must reside with an operational risk management function that is independent of the business units that use the framework. This function must be responsible for:

- (a) modification of firm-level policies and procedures relating to operational risk management and control;
- (b) design and implementation of a risk reporting system for operational risk; and

- 8.8 The bank must develop sound methodologies to identify, measure, monitor, control and mitigate operational risk.

Compliance arrangements

- 8.9 The registered bank must have arrangements in place to ensure compliance with internal policies, controls and procedures.

Documentation

- 8.10 The registered bank's operational risk management framework must be clearly documented. This documentation must include a definition of operational risk which is consistent with that set out in section 2, and a set of internal policies, controls and procedures for operational risk management, including policies for the treatment of non-compliance.

Internal reporting of operational risk information

- 8.11 The registered bank must have a formal process for regular reporting of operational risk exposures and loss experience to business unit management, senior management and the board of directors. The registered bank must have procedures for taking appropriate action on the basis of the information in these reports.

Integration of the operational risk measurement system into day-to-day operational risk management

- 8.12 The registered bank's operational risk measurement system must be closely integrated into the practical day-to-day risk management processes of the registered bank. The outputs from the registered bank's operational risk measurement system must help inform the registered bank's decision-making, corporate governance, risk management, and internal capital allocation processes.
- 8.13 The registered bank's operational risk measurement system must include techniques for allocating operational risk capital to all material business lines and must create incentives for improving operational risk management.

External/internal audit

- 8.14 The registered bank's operational risk management processes and measurement systems must be subject to annual review by external or internal auditors or by a suitably qualified independent reviewer. AMA reviews must include:
- (a) Verification that internal validation processes are operating in a satisfactory manner; and
 - (b) Checking that data flows and processes associated with the risk measurement system, including system parameters and specifications, are transparent and accessible.

Quantitative requirements

AMA soundness standard

- 8.15 The registered bank's approach to operational risk measurement must capture potentially severe low-frequency high-impact loss events. Specifically, the operational risk measure must meet a soundness standard comparable to a one-year holding period and a 99.9 percent confidence level of the total operational loss distribution (i.e. comparable to the standard used for the internal ratings based (IRB) approaches to credit risk).
- 8.16 The registered bank must have rigorous procedures for operational risk model development and independent model validation.

Treatment of inter-jurisdictional diversification benefits

- 8.17 For a registered bank which is a subsidiary of an overseas bank, diversification benefits derived from being part of a larger banking group must not be incorporated into the registered bank's AMA capital calculations unless specifically approved by the Reserve Bank.

Detailed criteria

- 8.18 The following quantitative standards apply to internally generated operational risk measures for the purposes of regulatory capital calculations:
- (a) The internal operational risk measurement system must be consistent with the definition of operational risk in section 8.2 and the operational loss event types defined in Annex 2.
 - (b) The registered bank must measure the regulatory capital requirement for operational risk as the sum of both expected loss (EL) and unexpected loss (UL) unless the Reserve Bank has agreed that the registered bank can base its minimum regulatory capital requirement on UL alone.
 - (c) The registered bank's operational risk measurement system must be sufficiently granular to capture the major drivers of operational risk affecting the distribution of low-frequency high-impact losses.
 - (d) Risk measures for different operational risk estimates must be added together for the purposes of calculating the overall regulatory minimum capital requirements unless the Reserve Bank has approved the use of internally determined correlations in operational risk losses across individual operational risk estimates.
- 8.19 The registered bank's internal operational risk measurement system must have a reasonable mix of the features listed below to help ensure compliance with the AMA soundness standard:
- (a) The registered bank's operational risk measurement system must include the following four features:
 - (i) use of internal loss event data;
 - (ii) use of relevant external loss event data;
 - (iii) scenario analysis; and
 - (iv) factors reflecting the business environment and internal control systems.

- (b) The registered bank must have a credible, transparent, well-documented, and verifiable approach to weighting the above features in its overall operational risk measurement system.

For example, there may be cases where estimates of the 99.9th percentile confidence interval based primarily on internal and external loss event data would be unreliable for business lines with a heavy-tailed loss distribution and a small number of observed losses. In such cases, scenario analysis may play a more dominant role in the risk measurement system. Conversely, operational loss event data may play a more dominant role in the risk measurement system for business lines where estimates of the 99.9th percentile confidence interval based primarily on such data are considered reliable.

- (c) In all cases, the registered bank's approach to weighting the four features identified in (a) should be internally consistent and avoid the double-counting of qualitative assessments or risk mitigants already recognised in the other elements of its operational risk management framework.

Internal data

- 8.20 The registered bank must track internal loss data according to the criteria set out in this section so that it can link its operational risk estimates to its actual loss experience.
- 8.21 The registered bank must have well-documented procedures for assessing the ongoing relevance of historical loss data. Such documentation should cover situations in which judgemental overrides, scaling, or other adjustments to the internal data may be used, the extent to which they may be used, and who is authorised to make such decisions.
- 8.22 Internally generated operational risk measures used for regulatory capital calculations must be based on a minimum 5-year observation period of internal data¹, regardless of whether the internal dataset serves as a direct input to build the loss measure or as a basis for validation.
- 8.23 The registered bank's internal loss collection processes must meet the following standards:
- (a) The registered bank must be able to map its historical internal loss data to the relevant Level 1 loss event types and business lines described in Annex 3. The registered bank must have well-documented and objective criteria for allocating losses to these event types and business lines.
- (b) The registered bank's internal loss data must capture all material activities and exposures from all operational systems and geographic locations.

¹ However, at the time at which a registered bank first moves to the AMA the Reserve Bank may allow it to use a 3-year observation period for an initial period.

- (c) As well as collecting information on gross loss amounts, the registered bank must collect information about the date of the loss event, any recoveries of gross loss amounts, and descriptive information about the drivers or causes of the loss event. The level of detail of any descriptive information must be commensurate with the size of the gross loss amount.
- (d) The registered bank must have specific criteria for assigning loss data resulting from an event in a centralised function (for instance, an information technology department) or an activity that spans more than one business line. Also the registered bank must have criteria for assigning loss data from related operational loss events over time.
- (e) The registered bank must treat operational losses that are related to credit risk and/or have been included in its credit risk databases as credit risk for regulatory capital calculations. In other words, these losses will not be subject to the operational risk capital charge. However, a registered bank must still include material credit-risk related operational losses in its internal operational risk database.
- (f) The registered bank must treat operational losses that are related to market risk as operational risk for regulatory capital calculations.

External data

- 8.24 The registered bank's operational risk measurement system must use relevant external data² (either public data and/or pooled industry data).
- 8.25 The registered bank's external operational-loss data should include data on the actual loss amounts, information about the scale of business operations where the loss event occurred, information about the causes and circumstances of the loss events, and/or other information that could help assess the relevance of the loss event for the registered bank.
- 8.26 The registered bank must have a systematic process for determining the situations for which external data must be used and the methodologies used to incorporate the data (eg, scaling, qualitative adjustments, and/or informing the development of improved scenario analysis).
- 8.27 The registered bank must regularly review and document the conditions and practices for external data use. Also, these conditions and practices must be subject to periodic independent review.

² The inclusion of external loss data is important because banks may be exposed to infrequent but potentially severe operational loss events that are not captured in internal data.

Scenario analysis

- 8.28 The registered bank must use scenario analysis using expert opinion in conjunction with external data to evaluate its exposure to infrequent, high-severity operational loss events. This analysis must draw on the knowledge of both experienced business managers and risk management experts to derive reasoned assessments of plausible severe losses.
- 8.29 Scenario analysis should be used to help assess the impact of deviations from the correlation assumptions that are embedded in the registered bank's operational risk measurement system. In particular, this analysis should help evaluate potential losses arising from multiple simultaneous operational events. Over time, the registered bank must validate and re-assess the above expert assessments through comparison to actual loss experience to ensure their reasonableness (i.e. back-testing).

Business environment and internal control factors

- 8.30 The registered bank's firm-wide operational risk assessment methodology must capture key business environment and internal control factors that can impact on its operational risk profile.
- 8.31 The use of the above factors in the operational risk measurement system must meet the following standards:
- (a) Each factor chosen must be justified as a meaningful driver of risk, based on experience and involving the expert judgement of the affected business areas. Where possible, the risk factors should be translatable into quantitative measures that lend themselves to verification.
 - (b) The sensitivity of the registered bank's risk estimates to changes in the risk factors and the relative weighting of the various risk factors must be well reasoned. Also the registered bank's risk measurement framework must capture changes in risk due to improvements in risk controls and potential increases in risk arising from increased volumes of business or greater complexity of activities.
 - (c) The risk measurement framework and each instance of its application, including the rationale for any adjustments to empirical estimates, must be documented and subject to independent review within the registered bank.
 - (d) The process and outcomes must be validated through comparison with actual internal loss experience and relevant external data, and appropriate adjustments made as necessary.

Operational risk mitigation

- 8.32 The registered bank may recognise the risk-mitigating effect of insurance in the operational risk measures used for regulatory capital calculations. The recognition of insurance is limited to 20 percent of the total regulatory operational risk capital charge calculated under the AMA.
- 8.33 The registered bank may recognise risk mitigation from insurance in regulatory capital calculations only if the following criteria are met:
- (a) The insurance provider must have a minimum claims-paying ability rating of A under Standard & Poor's Insurer Financial Strength Ratings, or A2 under Moody's Insurance Financial Strength Ratings.³
 - (b) The insurance policy must have an initial term of no less than a year. For policies with a residual term of less than a year, the registered bank must make appropriate haircuts that reflect the declining residual term of the insurance policy, up to a 100 percent haircut for policies with a residual term of 90 days or less.
 - (c) The insurance policy must have a minimum notice period for cancellation of 90 days.
 - (d) The insurance policy must have no exclusions or limitations triggered by regulatory actions or, in the case of a failed registered bank, that preclude the registered bank, statutory manager, liquidator, receiver or administrator from recovering damages suffered or expenses incurred by the registered bank except in respect of loss events occurring after the initiation of statutory management, liquidation proceedings, receivership or voluntary administration in respect of the registered bank. Cover under the insurance policy may exclude any fine, penalty, or punitive damages resulting from supervisory actions.
 - (e) The calculations of insurance risk mitigation must reflect the registered bank's insurance coverage in a manner that is both transparent in its relationship to, and consistent with, the actual likelihood and financial impact of operational losses in the registered bank's overall calculations of regulatory capital for operational risk.
 - (f) The insurance must be fully laid off to a third-party entity. In the case of insurance through captives and affiliates (i.e. self-insurance), no capital relief is available.
 - (g) The registered bank's framework for recognising insurance must be well documented.

³ There is potential for additional credit rating agencies to be added to the list of approved agencies. For details of the criteria the Reserve Bank uses for deciding whether or not to approve a credit rating agency see BS1, the Statement of Principles.

- 8.34 The registered bank's inclusion of insurance risk mitigation in its regulatory capital measurement must capture the following elements through appropriate discounts and/or haircuts in the value of insurance recognition:
- (a) The residual term of a policy, if the term is less than a year, as noted above;
 - (b) The insurer's ability to cancel the policy, if the notice period for cancellation is less than a year; and
 - (c) The uncertainty of payment as well as mismatches in coverage of insurance policies.

ANNEX 1: SUPERVISORY SLOTTING CRITERIA FOR SPECIALISED LENDING

Table 1 – Supervisory rating grades for project finance exposures

	Strong	Good	Satisfactory	Weak
Financial strength				
Market conditions	There are few competing suppliers or there is a substantial and durable advantage in location, cost or technology. Demand is strong and growing.	There are few competing suppliers or there is a better than average location, cost or technology but this situation may not last. Demand is strong and stable.	The project has no advantage in location, cost or technology. Demand is adequate and stable.	The project has worse than average location, cost or technology. Demand is weak and declining.
Financial ratios (e.g. debt service coverage ratio (DSCR), loan life coverage ratio (LLCR), project life coverage ratio (PLCR) and debt-to-equity ratio)	The project has strong financial ratios considering the level of project risk and very robust economic assumptions.	The project has strong to acceptable financial ratios considering the level of project risk and robust project economic assumptions.	The project has standard financial ratios considering the level of project risk.	The project has aggressive financial ratios considering the level of project risk.

Table 1 – Supervisory rating grades for project finance exposures

	Strong	Good	Satisfactory	Weak
Stress analysis	The project can meet its financial obligations under sustained severely stressed economic or sectoral conditions.	The project can meet its financial obligations under stressed economic or sectoral conditions. The project is only likely to default under severe economic conditions.	The project is vulnerable to stresses that are not uncommon through an economic cycle and may default in a normal downturn.	The project is likely to default unless conditions improve soon.
Financial structure				
Duration of the credit compared to the duration of the project	The useful life of the project significantly exceeds the tenor of the loan.	The useful life of the project exceeds the tenor of the loan.	The useful life of the project exceeds the tenor of the loan.	The useful life of the project may not exceed the tenor of the loan.
Amortisation schedule	Amortising debt.	Amortising debt.	Amortising debt repayments with limited balloon payment.	Bullet payment or amortising debt with high balloon repayment.
Political and legal environment				
Political risk, including transfer risk, considering project type and mitigants	The project has very low exposure; there are strong mitigation instruments, if needed.	The project has low exposure; there are satisfactory mitigation instruments, if needed.	The project has moderate exposure; there are fair mitigation instruments.	The project has high exposure; the mitigation instruments are weak or there are none.

Table 1 – Supervisory rating grades for project finance exposures

	Strong	Good	Satisfactory	Weak
Force majeure risk (war, civil unrest, etc)	Low exposure.	Acceptable exposure.	Standard protection.	There are significant risks which are not fully mitigated.
Government support and project's importance for the country over the long term	The project is of strategic importance for the country (preferably export-oriented). It has strong support from the government.	The project is considered important for the country. It has a good level of support from the government.	The project may not be strategic but brings unquestionable benefits for the country. Government support may not be explicit.	The project is not key to the country. The support from the government, if any, is weak.
Stability of legal and regulatory environment (risk of change in law)	The regulatory environment is favourable and stable over the long term.	The regulatory environment is favourable and stable over the medium term.	Regulatory changes can be predicted with a fair level of certainty.	Current or future regulatory issues may affect the project.
Acquisition of all necessary supports and approvals for such relief from local content laws	Strong.	Satisfactory.	Fair.	Weak
Enforceability of contracts, collateral and security	Contracts, collateral and security are enforceable.	Contracts, collateral and security are enforceable.	Contracts, collateral and security are considered enforceable even if certain non-key issues exist.	There are unresolved key issues in respect of actual enforcement of contracts, collateral and security.

Table 1 – Supervisory rating grades for project finance exposures

	Strong	Good	Satisfactory	Weak
Transaction characteristics				
Design and technology risk	The project has fully proven technology and design.	The project has fully proven technology and design.	The project has proven technology and design; start-up issues are mitigated by a strong completion package.	The project has unproven technology and design; technology issues exist and/or complex design.
Construction risk				
Permitting and siting	All permits have been obtained.	Some permits are still outstanding but their receipt is considered very likely.	Some permits are still outstanding but the permitting process is well defined and they are considered routine.	Key permits still need to be obtained and are not considered routine. Significant conditions may be attached.
Type of construction contract	Fixed-price date-certain turnkey construction engineering and procurement contract (EPC).	Fixed-price date-certain turnkey construction EPC.	Fixed-price date-certain turnkey construction contract with one or several contractors.	No or partial fixed-price turnkey contract and/or interfacing issues with multiple contractors.

Table 1 – Supervisory rating grades for project finance exposures

	Strong	Good	Satisfactory	Weak
Completion guarantees	The liquidated damages are substantial and are supported by financial substance and/or strong completion guarantee from sponsors with excellent financial standing.	The liquidated damages are significant and are supported by financial substance and/or completion guarantee from sponsors with good financial standing.	The liquidated damages are adequate and are supported by financial substance and/or completion guarantee from sponsors with good financial standing.	The liquidated damages are inadequate or not supported by financial substance or weak completion guarantees.
Track record and financial strength of contractor in constructing similar projects	Strong.	Good.	Satisfactory.	Weak.
Operating risk Scope and nature of operations and maintenance (O & M) contracts	There is a strong long-term O&M contract, preferably with contractual performance incentives and/or O&M reserve accounts.	There is a long-term O&M contract and/or O&M reserve accounts.	There is a limited O&M contract or O&M reserve account.	There is no O&M contract. There is a risk of high operational cost overruns beyond mitigants.
Operator's expertise, track record and financial strength	Very strong or committed technical assistance of the sponsors.	Strong.	Acceptable.	Limited/weak or local operator dependent on local authorities.

Table 1 – Supervisory rating grades for project finance exposures

	Strong	Good	Satisfactory	Weak
Off-take risk				
(a) If there is a take-or-pay or fixed-price off-take contract	The off-taker has excellent creditworthiness. There are strong termination clauses. The tenor of the contract comfortably exceeds the maturity of the debt.	The off-taker has good creditworthiness. There are strong termination clauses. The tenor of the contract exceeds the maturity of the debt.	The off-taker's financial standing is acceptable. There are normal termination clauses. The tenor of the contract generally matches the maturity of the debt.	The off-taker is considered weak and there are weak termination clauses. The tenor of the contract does not exceed the maturity of the debt.
(b) If there is no take-pay or fixed-price off-take contract	The project produces essential services or a commodity sold widely on a world market. Output can readily be absorbed at projected prices even at lower than historic market growth rates.	The project produces essential services or a commodity sold widely on a regional market that will absorb it at projected prices at historical growth rates.	The commodity is sold on a limited market that may absorb it only at lower than projected prices.	The project output is demanded by only one or a few buyers or is not generally sold on an organised market.

Table 1 – Supervisory rating grades for project finance exposures

	Strong	Good	Satisfactory	Weak
Supply risk Price, volume and transportation risk of feed-stocks; supplier's track record and financial strength	There is a long-term supply contract with a supplier of excellent financial standing.	There is a long-term supply contract with a supplier of good financial standing.	There is a long-term supply contract with a supplier of good financial standing – a degree of price risk may remain.	There is a short-term supply contract or long-term supply contract with a financially weak supplier – a degree of price risk definitely remains.
Reserve risks (e.g. natural resource development)	Reserves are independently audited, proven and developed and are well in excess of requirements over lifetime of the project.	Reserves are independently audited, proven and developed and are in excess of requirements over lifetime of the project.	Reserves are proven and can supply the project adequately through the maturity of the debt.	The project relies to some extent on potential and undeveloped reserves.
Strength of Sponsor				
Sponsor's track record, financial strength and country/sector experience	The sponsor is strong with an excellent track record and high financial standing.	The sponsor is good with a satisfactory track record and good financial standing.	The sponsor is adequate with an adequate track record and good financial standing.	The sponsor is weak with a questionable/no track record and/or financial weaknesses.
Sponsor support, as evidenced by equity, ownership clause and incentive to inject additional cash if necessary	Strong. The project is highly strategic for the sponsor (core business – long-term strategy).	Good. The project is strategic for the sponsor (core business – long-term strategy).	Acceptable. The project is considered important for the sponsor (core business).	Limited. The project is not key to the sponsor's long-term strategy or core business.

Table 1 – Supervisory rating grades for project finance exposures

	Strong	Good	Satisfactory	Weak
Security package				
Assignment of contracts and accounts	Fully comprehensive.	Comprehensive.	Acceptable.	Weak.
Pledge of assets, taking into account quality, value and liquidity of assets	First perfected security interest in all project assets, contracts, permits and accounts necessary to run the project.	Perfected security interest in all project assets, contracts, permits and accounts necessary to run the project.	Acceptable security interest in all project assets, contracts, permits and accounts necessary to run the project.	Little security or collateral for lenders; weak negative pledge clause.
Lender's control over cash flow (e.g. cash sweeps, independent escrow accounts)	Strong.	Satisfactory.	Fair.	Weak.
Strength of the covenant package (mandatory prepayments, payment deferrals, payment cascade, dividend restrictions, etc)	The covenant package is strong for this type of project. The project may issue no additional debt.	The covenant package is satisfactory for this type of project. The project may issue extremely limited additional debt.	The covenant package is fair for this type of project. The project may issue limited additional debt.	The covenant package is insufficient for this type of project. The project may issue unlimited additional debt.
Reserve funds (debt service, O&M, renewal and replacement, unforeseen events, etc)	There is a longer than average coverage period, all reserve funds are fully funded in cash or letters of credit from highly rated banks.	There is an average coverage period and all reserve funds fully funded.	There is an average coverage period and all reserve funds fully funded.	The coverage period is shorter than average and reserve funds are funded from operating cash flows.

Table 1 – Supervisory rating grades for project finance exposures

	Strong	Good	Satisfactory	Weak
Market conditions	The supply and demand for the project's type and location are currently in equilibrium. The number of competitive properties coming to market is equal or lower than forecasted demand.	The supply and demand for the project's type and location are currently in equilibrium. The number of competitive properties coming to market is roughly equal to forecasted demand.	Market conditions are roughly in equilibrium. Competitive properties are coming on the market and others are in the planning stages. The project's design and capabilities may not be state of the art compared to new projects.	Market conditions are weak. It is uncertain when conditions will improve and return to equilibrium. The project is losing tenants at lease expiration. New lease terms are less favourable compared to those expiring.

Table 2 – Supervisory rating grades for income-producing real estate exposures

	Strong	Good	Satisfactory	Weak
Financial ratios and advance rate	The property's DSCR is considered strong (DSCR is not relevant for the construction phase) and its loan to valuation ratio (LVR) is considered low given its property type. Where a secondary market exists, the transaction is underwritten to market standards.	The DSCR (not relevant for development real estate) and LVR are satisfactory. Where a secondary market exists, the transaction is underwritten to market standards.	The property's DSCR has deteriorated and its value has fallen, increasing its LVR.	The property's DSCR has deteriorated significantly and its LVR is well above underwriting standards for new loans.

Table 2 – Supervisory rating grades for income-producing real estate exposures

	Strong	Good	Satisfactory	Weak
Stress analysis	The property's resources, contingencies and liability structure allow it to meet its financial obligations during a period of severe financial stress (e.g. increase in interest rates, downturn in economic growth).	The property can meet its financial obligations under a sustained period of financial stress (e.g. increase in interest rates, downturn in economic growth). The property is likely to default only under severe economic conditions.	During an economic downturn, the property would suffer a decline in revenue that would limit its ability to fund capital expenditures and significantly increase the risk of default.	The property's financial condition is strained and is likely to default unless conditions improve in the near term.
Cash-flow predictability (a) For complete and stabilised property	The property's leases are long-term with creditworthy tenants and their maturity dates are scattered. The property has a track record of tenant retention upon lease expiration. Its vacancy rate is low. Expenses (maintenance, insurance, security and property taxes) are predictable.	Most of the property's leases are long-term, with tenants that range in creditworthiness. The property experiences a normal level of tenant turnover upon lease expiration. Its vacancy rate is low. Expenses are predictable.	Most of the property's leases are medium rather than long-term with tenants that range in creditworthiness. The property experiences a moderate level of tenant turnover upon lease expiration. Its vacancy rate is moderate. Expenses are relatively predictable but vary in relation to revenue.	The property's leases are of various terms with tenants that range in creditworthiness. The property experiences a very high level of tenant turnover upon lease expiration. Its vacancy rate is high. Significant expenses are incurred preparing space for new tenants.

Table 2 – Supervisory rating grades for income-producing real estate exposures

	Strong	Good	Satisfactory	Weak
(b) For complete but not stabilised property	Leasing activity meets or exceeds projections. The project should achieve stabilisation in the near future.	Leasing activity meets or exceeds projections. The project should achieve stabilisation in the near future.	Most leasing activity is within projections however, stabilisation will not occur for some time.	Market rents do not meet expectations. Despite achieving target occupancy rate, cash flow coverage is tight due to disappointing revenue.
(c) For construction phase	The property is entirely pre-leased through the tenor of the loan or pre-sold to an investment grade tenant or buyer or the bank has a binding commitment for take-out financing from an investment grade lender.	The property is entirely pre-leased or pre-sold to a creditworthy tenant or buyer or the bank has a binding commitment for permanent financing from a creditworthy lender.	Leasing activity is within projections but the building may not be pre-leased and take-out financing may not exist. The bank may be the permanent lender.	The property is deteriorating due to cost overruns, market deterioration, tenant cancellations or other factors. There may be a dispute with the party providing the permanent financing.
Asset characteristics				
Location	The property is located in a highly desirable location that is convenient to services that tenants desire.	The property is located in a desirable location that is convenient to services that tenants desire.	The property location lacks a competitive advantage.	The property's location, configuration, design and maintenance have contributed to the property's difficulties.

Table 2 – Supervisory rating grades for income-producing real estate exposures

	Strong	Good	Satisfactory	Weak
Design and condition	The property is favoured due to its design, configuration and maintenance and is highly competitive with new properties.	The property is appropriate in terms of its design, configuration and maintenance. The property's design and capabilities are competitive with new properties.	The property is adequate in terms of its configuration, design and maintenance.	Weaknesses exist in the property's configuration, design or maintenance.
Property is under construction	The construction budget is conservative and technical hazards are limited. Contractors are highly qualified.	The construction budget is conservative and technical hazards are limited. Contractors are highly qualified.	The construction budget is adequate and contractors are ordinarily qualified.	The project is over budget or unrealistic given its technical hazards. Contractors may be under qualified.
Strength of Sponsor/Developer				
Financial capacity and willingness to support the property	The sponsor/developer made a substantial cash contribution to the construction or purchase of the property. The sponsor/developer has substantial resources and limited direct and contingent liabilities. The sponsor/developer's properties are diversified geographically and by property type.	The sponsor/developer made a material cash contribution to the construction or purchase of the property. The sponsor/developer's financial condition allows it to support the property in the event of a cash flow shortfall. The sponsor/developer's properties are located in several geographic regions.	The sponsor/developer's contribution may be immaterial or non-cash. The sponsor/developer is average to below average in financial resources.	The sponsor/developer lacks capacity or willingness to support the property.

Table 2 – Supervisory rating grades for income-producing real estate exposures

	Strong	Good	Satisfactory	Weak
Reputation and track record with similar properties	Management are experienced and the sponsors' quality is high. Strong reputation, lengthy and successful record with similar properties.	Appropriate management and sponsors' quality. The sponsor or management has a successful record with similar properties.	Moderate management and sponsor's quality. The management or sponsor track record does not raise serious concerns.	Ineffective management and sub-standard sponsor's quality. The management and sponsor difficulties have contributed to difficulties in managing properties in the past.
Relationships with relevant real estate agents	Strong relationships with leading agents such as leasing agents.	Proven relationships with leading agents such as leasing agents.	Adequate relationships with leasing agents and other parties providing important real estate services.	Poor relationships with leasing agents and/or other parties providing important real estate services.
Security package				
Nature of lien	Perfected first lien.	Perfected first lien.	Perfected first lien.	Ability of lender to foreclose is constrained.
Assignment of rents (for projects leased to long-term tenants)	The lender has obtained an assignment. They maintain current tenant information that would facilitate providing notice to remit rents directly to the lender, such as a current rent roll and copies of the project's leases.	The lender has obtained an assignment. They maintain current tenant information that would facilitate providing notice to the tenants to remit rents directly to the lender, such as current rent roll and copies of the project's leases.	The lender has obtained an assignment. They maintain current tenant information that would facilitate providing notice to the tenants to remit rents directly to the lender, such as current rent roll and copies of the project's leases.	The lender has not obtained an assignment of the leases or has not maintained the information necessary to readily provide notice to the building's tenants.

Table 2 – Supervisory rating grades for income-producing real estate exposures

	Strong	Good	Satisfactory	Weak
Quality of the insurance coverage	Appropriate.	Appropriate.	Appropriate.	Substandard.

Table 3 – Supervisory rating grades for object finance exposures

	Strong	Good	Satisfactory	Weak
Financial strength				
Market conditions	Demand is strong and growing. There are strong entry barriers and low sensitivity to changes in technology and economic outlook.	Demand is strong and stable. There are some entry barriers and some sensitivity to changes in technology and economic outlook.	Demand is adequate and the entry barriers are limited and stable. There is significant sensitivity to changes in technology and economic outlook.	Demand is weak and declining, vulnerable to changes in technology and economic outlook and a highly uncertain environment.
Financial ratios (debt service coverage ratio and loan-to-value ratio)	The financial ratios are strong considering the type of asset. Very robust economic assumptions.	The financial ratios are strong/acceptable considering the type of asset. Robust project economic assumptions.	The financial ratios are standard for the asset type.	The financial ratios are aggressive considering the type of asset.
Stress analysis	Long-term revenues are stable and capable of withstanding severely stressed conditions through an economic cycle.	Short-term revenues are satisfactory. The loan can withstand some financial adversity. Default is only likely under severe economic conditions.	Short-term revenues are uncertain. Cash flows are vulnerable to stresses that are not uncommon through an economic cycle. The loan may default in a normal downturn.	Revenues are subject to strong uncertainties. Even in normal economic conditions the asset may default, unless conditions improve.
Market liquidity	The market is structured on a worldwide basis. Assets are highly liquid.	The market is worldwide or regional. Assets are relatively liquid.	The market is regional with limited prospects in the short term, implying lower liquidity.	The market is local and/or has poor visibility. There is low or no liquidity, particularly on niche markets.

Table 3 – Supervisory rating grades for object finance exposures

	Strong	Good	Satisfactory	Weak
Political and legal environment				
Political risk, including transfer risk	Very low. There are strong mitigation instruments, if needed.	Low. There are satisfactory mitigation instruments, if needed.	Moderate. There are fair mitigation instruments.	High. The mitigation instruments, if any, are weak.
Legal and regulatory risks	The jurisdiction is favourable to repossession and enforcement of contracts.	The jurisdiction is favourable to repossession and enforcement of contracts.	The jurisdiction is generally favourable to repossession and enforcement of contracts, even if repossession might be long and/or difficult.	The legal and regulatory environment is poor and/or unstable. The jurisdiction may make repossession and enforcement of contracts lengthy or impossible.
Transaction characteristics				
Financing term compared to the economic life of the asset	Full payout profile/minimum balloon. No grace period.	Balloon more significant, but still at satisfactory levels.	Important balloon with potential grace periods.	Repayment in fine or high balloon.
Operating risk				
Permits/licensing	All permits have been obtained; the asset meets current and foreseeable safety regulations.	All permits have been obtained or are in the process of being obtained; the asset meets current and foreseeable safety regulations.	Most permits have been obtained or are in the process of being obtained, outstanding ones are considered routine, the asset meets current safety regulations.	There are problems in obtaining all required permits, part of the planned configuration and/or planned operations might need to be revised.

Table 3 – Supervisory rating grades for object finance exposures

	Strong	Good	Satisfactory	Weak
Scope and nature of O & M contracts	There is a strong long-term O&M contract, preferably with contractual performance incentives and/or O&M reserve accounts (if needed).	There is a long-term O&M contract and/or O&M reserve accounts (if needed).	There is a limited O&M contract or O&M reserve account (if needed).	There is no O&M contract and a risk of high operational cost overruns beyond mitigants.
Operator's financial strength, track record in managing the asset type and capability to re-market asset when it comes off-lease	Excellent track record and strong re-marketing capability.	Satisfactory track record and re-marketing capability.	Weak or short track record and uncertain re-marketing capability.	No or unknown track record and inability to re-market the asset.
Asset characteristics				
Configuration, size, design and maintenance (i.e. age, size for a plane) compared to other assets on the same market	There is a strong advantage in design and maintenance. Configuration is standard such that the object meets a liquid market.	The design and maintenance is above average. Standard configuration, possibly with very limited exceptions, such that the object meets a liquid market.	The design and maintenance is average. Configuration is somewhat specific and thus might cause a narrower market for the object.	The design and maintenance is below average. The asset is near the end of its economic life. Configuration is very specific. The market for the object is very narrow.
Resale value	The current resale value is well above debt value.	The resale value is moderately above debt value.	The resale value is slightly above debt value.	The resale value is below debt value.

Table 3 – Supervisory rating grades for object finance exposures

	Strong	Good	Satisfactory	Weak
Sensitivity of the asset value and liquidity to economic cycles	The asset value and liquidity are relatively insensitive to economic cycles.	The asset value and liquidity are sensitive to economic cycles.	The asset value and liquidity are quite sensitive to economic cycles.	The asset value and liquidity are highly sensitive to economic cycles.
Strength of sponsor				
Operator's financial strength, track record in managing the asset type and capability to re-market asset when it comes off-lease	Excellent track record and strong re-marketing capability.	Satisfactory track record and re-marketing capability.	Weak or short track record and uncertain re-marketing capability.	No or unknown track record and inability to re-market the asset.
Sponsors' track record and financial strength	The sponsors have an excellent track record and high financial standing.	The sponsors have a good track record and good financial standing.	The sponsors have an adequate track record and good financial standing.	The sponsors have a questionable/no track record and/or financial weaknesses.
Security package				
Asset control	Legal documentation provides the lender effective control (e.g. a first perfected security interest or a leasing structure including such security) on the asset or on the company owning it.	Legal documentation provides the lender effective control (e.g. a perfected security interest or a leasing structure including such security) on the asset or on the company owning it.	Legal documentation provides the lender effective control (e.g. a perfected security interest or a leasing structure including such security) on the asset, or on the company owning it.	The contract provides little security to the lender and leaves room to some risk of losing control on the asset.

Table 3 – Supervisory rating grades for object finance exposures

	Strong	Good	Satisfactory	Weak
Rights and means at the lender's disposal to monitor the location and condition of the asset	The lender is able to monitor the location and condition of the asset at any time and place (regular reports, possibility to lead inspections).	The lender is able to monitor the location and condition of the asset almost at any time and place.	The lender is able to monitor the location and condition of the asset almost at any time and place.	The lender has a limited ability to monitor the location and condition of the asset.
Insurance against damages	There is strong insurance coverage including collateral damages with top quality insurance companies.	The insurance coverage is satisfactory (not including collateral damages) with good quality insurance companies.	The insurance coverage is fair (not including collateral damages) with acceptable quality insurance companies.	The insurance coverage is weak (not including collateral damages) or with weak quality insurance companies.

Table 4 – Supervisory rating grades for commodities finance exposures

	Strong	Good	Satisfactory	Weak
Financial strength				
Degree of over-collateralisation of trade	Strong.	Good.	Satisfactory.	Weak.
Political and legal environment				
Country risk	No country risk.	There is limited exposure to country risk (in particular, offshore location of reserves in an emerging country).	There is some exposure to country risk (in particular, offshore location of reserves in an emerging country).	There is strong exposure to country risk (in particular, inland reserves in an emerging country).
Mitigation of country risks	Very strong mitigation. Strong offshore mechanisms. Strategic commodity. Excellent buyer.	Strong mitigation. Offshore mechanisms. Strategic commodity. Strong buyer.	Acceptable mitigation. Offshore mechanisms. Less strategic commodity. Acceptable buyer.	Only partial mitigation. No offshore mechanisms. Non-strategic commodity. Weak buyer.
Asset characteristics				
Liquidity and susceptibility to damage	The commodity is quoted and can be hedged through futures or over the counter (OTC) instruments. The commodity is not susceptible to damage.	The commodity is quoted and can be hedged through OTC instruments. The commodity is not susceptible to damage.	The commodity is not quoted but is liquid. There is uncertainty about the possibility of hedging. The commodity is not susceptible to damage.	The commodity is not quoted. Liquidity is limited given the size and depth of the market. There are no appropriate hedging instruments. The commodity is susceptible to damage.

Table 4 – Supervisory rating grades for commodities finance exposures

	Strong	Good	Satisfactory	Weak
Strength of sponsor				
Financial strength of trader	Very strong, relative to trading philosophy and risks.	Strong relative to trading philosophy and risks.	Adequate relative to trading philosophy and risks.	Weak relative to trading philosophy and risks.
Track record, including ability to manage the logistic process	Extensive experience with the type of transaction in question. Strong record of operating success and cost efficiency.	Sufficient experience with the type of transaction in question. Above average record of operating success and cost efficiency.	Limited experience with the type of transaction in question. Average record of operating success and cost efficiency.	Limited or uncertain track record in general. Volatile costs and profits.
Trading controls and hedging policies	Strong standards for counterparty selection, hedging and monitoring.	Adequate standards for counterparty selection, hedging and monitoring.	Adequate standards for counterparty selection, hedging and monitoring. Past deals have experienced no or minor problems.	Weak standards for counterparty selection, hedging and monitoring. Trader has experienced significant losses on past deals.
Quality of financial disclosure	Excellent.	Good.	Satisfactory.	Financial disclosure contains some uncertainties or is insufficient.

Table 4 – Supervisory rating grades for commodities finance exposures

	Strong	Good	Satisfactory	Weak
Security package				
Asset control	First perfected security interest provides the lender legal control of the assets at any time if needed.	First perfected security interest provides the lender legal control of the assets at any time if needed.	At some point in the process, there is a break in the control of the assets by the lender. The break is mitigated by knowledge of the trade process or a third party undertaking as the case may be.	Contract leaves room for some risk of losing control over the assets. Recovery could be jeopardised.
Insurance against damages	Insurance coverage is strong, including collateral damages with top quality insurance companies.	Insurance coverage is satisfactory (not including collateral damages) with good quality insurance companies.	Insurance coverage is fair (not including collateral damages) with acceptable quality insurance companies.	Insurance coverage is weak (not including collateral damages) or with weak quality insurance companies.

ANNEX 2: MAPPING OF BUSINESS LINES

Mapping of Business Lines		
Level 1	Level 2	Indicative Activity Groups
Corporate Finance	Corporate Finance	Mergers and acquisitions, underwriting, privatisations, securitisation, research, debt (government, high yield), equity, syndications, IPO, secondary private placements
	Municipal/Government Finance	
	Merchant Banking	
	Advisory Services	
Trading & Sales	Sales	Fixed income, equity, foreign exchange, commodities, credit, funding, own position securities, lending and repos, brokerage, debt, prime brokerage
	Market Making	
	Proprietary Positions	
	Treasury	
Retail Banking	Retail Banking	Retail lending and deposits, banking services, trust and estates
	Private Banking	Private lending and deposits, banking services, trust and estates, investment advice
	Card Services	Merchant, commercial, corporate, and retail cards
Commercial Banking	Commercial Banking	Project finance, real estate, export finance, trade finance, factoring, leasing, lending, guarantees, bills of exchange
Payment and Settlement ⁸⁵	External Clients	Payments and collections, funds transfer, clearing and settlement
Agency Services	Custody	Escrow, depository receipts, securities lending (customers), corporate actions
	Corporate Agency	Issuer and paying agents
	Corporate Trust	
Asset Management	Discretionary (Active) Fund Management	Pooled, segregated, retail, institutional, closed, open, private equity
	Non-Discretionary (Passive) Fund Management	Pooled, segregated, retail, institutional, closed, open
Retail Brokerage	Retail Brokerage	Execution and full service

⁸⁵ Payment and settlement losses related to a bank's own activities would be incorporated in the loss experience of the affected business line.

Principles for business line mapping

1. All activities must be mapped into the eight level 1 business lines in a mutually exclusive and jointly exhaustive manner.
2. Any banking or non-banking activity which cannot be readily mapped into the business line framework, but which represents an ancillary function to an activity included in the framework, must be allocated to the business line it supports. If more than one business line is supported through the ancillary activity, objective mapping criteria must be used.
3. The mapping of activities into business lines for operational risk capital purposes must be consistent with the definitions of business lines used for regulatory capital calculations in other risk categories, i.e. credit and market risk. Any deviations from this principle must be clearly justified and documented.
4. The mapping process used must be clearly documented. In particular, written business line definitions must be clear and detailed enough to allow third parties to replicate the business line mapping. Documentation must, among other things, clearly justify any exceptions or overrides and be kept on record.
5. Processes must be in place to define the mapping of any new activities or products.
6. Senior management is responsible for the mapping policy (which is subject to the approval by the board of directors).
7. The mapping process to business lines must be subject to independent review.

ANNEX 3: DETAILED LOSS EVENT TYPE CLASSIFICATION

Event-Type Category (Level 1)	Definition	Categories (Level 2)	Activity Examples (Level 3)
Internal fraud	Losses due to acts of a type intended to defraud, misappropriate property or circumvent regulations, the law or company policy, excluding diversity/ discrimination events, which involve at least one internal party	Unauthorised Activity	Transactions not reported (intentional) Transaction type unauthorised (w/monetary loss) Mismarking of position (intentional)
		Theft and Fraud	Fraud / credit fraud / worthless deposits Theft / extortion / embezzlement / robbery Misappropriation of assets Malicious destruction of assets Forgery Cheque kiting Smuggling Account take-over / impersonation / etc. Tax non-compliance / evasion (wilful) Bribes / kickbacks Insider trading (not on firm's account)
External fraud	Losses due to acts of a type intended to defraud, misappropriate property or circumvent the law, by a third party	Theft and Fraud	Theft/Robbery Forgery Cheque kiting
		Systems Security	Hacking damage Theft of information (w/monetary loss)
Employment Practices and Workplace Safety	Losses arising from acts inconsistent with employment, health or safety laws or agreements, from payment of personal injury claims, or from diversity / discrimination events	Employee Relations	Compensation, benefit, termination issues Organised labour activity
		Safe Environment	General liability Employee health & safety rules events Workers compensation
		Diversity & Discrimination	All discrimination types

Event-Type Category (Level 1)	Definition	Categories (Level 2)	Activity Examples (Level 3)
Clients, Products & Business Practices	Losses arising from an unintentional or negligent failure to meet a professional obligation to specific clients (including fiduciary and suitability requirements), or from the nature or design of a product.	Suitability, Disclosure & Fiduciary	Fiduciary breaches / guideline violations Suitability / disclosure issues (know your customer, etc.) Retail customer disclosure violations Breach of privacy Aggressive sales Account churning Misuse of confidential information Lender liability
		Improper Business or Market Practices	Antitrust Improper trade / market practices Market manipulation Insider trading (on firm's account) Unlicensed activity Money laundering
		Product Flaws	Product defects (unauthorised, etc.) Model errors
		Selection, Sponsorship & Exposure	Failure to investigate client per guidelines Exceeding client exposure limits
		Advisory Activities	Disputes over performance of advisory activities
Damage to Physical Assets	Losses arising from loss or damage to physical assets from natural disaster or other events.	Disasters and other events	Natural disaster losses Human losses from external sources (terrorism, vandalism)
Business disruption and system failures	Losses arising from disruption of business or system failures	Systems	Hardware Software Telecommunications Utility outage / disruptions

Event-Type Category (Level 1)	Definition	Categories (Level 2)	Activity Examples (Level 3)
Execution, Delivery & Process Management	Losses from failed transaction processing or process management, from relations with trade counterparties and vendors	Transaction Capture, Execution & Maintenance	Miscommunication Data entry, maintenance or loading error Missed deadline or responsibility Incorrect operation of model / system Accounting error / entity attribution error Other task misperformance Delivery failure Collateral management failure Reference Data Maintenance
		Monitoring and Reporting	Failed mandatory reporting obligation Inaccurate external report (loss incurred)
		Customer Intake and Documentation	Client permissions / disclaimers missing Legal documents missing / incomplete
		Customer / Client Account Management	Unapproved access given to accounts Incorrect client records (loss incurred) Negligent loss or damage of client assets
		Trade Counterparties	Non-client counterparty misperformance Misc. non-client counterparty disputes
		Vendors & Suppliers	Outsourcing Vendor disputes