Table 15

External short-term rating[1]	Securitisation exposure			Resecuritisation exposure	
	Risk weight – senior, granular position[2, 3]	Base risk weight – non-senior, granular[5]	Risk weight for non-granular[4]	Senior[6]	Non-senior
A-1/P-1	7%	12%	20%	20%	30%
A-2/P-2	12%	20%	35%	40%	65%
A-3/P-3	60%	75%	75%	150%	225%
All other ratings or unrated positions	Deducted from capital and reserve funds				

1. The notations used in this table relate to the ratings used by a particular credit assessment institution. The use of the rating scale of a particular credit assessment institution does not mean that any preference is given to a particular credit assessment institution. The assessments/ rating scales of other external credit assessment institutions, recognised as eligible institutions in the RSA, may have been used instead.
2. Relates to senior positions in a securitisation scheme that consists of an effective number of underlying exposures of no less than 6, which effective number of exposures shall be calculated in accordance with the relevant requirements specified in paragraph (n) below, and where senior position means an effective first claim in respect of the entire amount of the assets/exposures in the underlying securitised pool. For example, in the case of-
   (a) a synthetic securitisation scheme the "super-senior" tranche shall be treated as a senior position provided that the bank complies with the relevant conditions specified in paragraph (f) below to infer a rating from a lower tranche
   (b) a traditional securitisation scheme, in which scheme all tranches above the first-loss position are rated, the highest rated position shall be treated as a senior position provided that when several tranches share the same rating the most senior position in the waterfall of payment shall be treated as the senior position.
3. Including eligible senior exposures that comply with the relevant requirements specified in paragraphs (g) and (h) below relating to the internal assessment approach.
4. Relates to a senior position in a securitisation scheme in which the effective number of underlying exposures, calculated in accordance with the relevant requirements specified in paragraph (n) below, is less than 6.
5. Relates to all positions other than a senior position, such as a position/facility that, in economic substance, constitutes a mezzanine position and not a senior position in respect of the underlying pool.
6. Means a resecuritisation exposure that is a senior position and none of the underlying exposures are resecuritisation exposures, that is, any resecuritisation exposure in respect of which the underlying exposure includes a resecuritisation exposure shall be categorised as a non-senior resecuritisation position or exposure.

(f) Securitisation exposure: conditions relating to an inferred rating

A bank that applies the rating-based approach in respect of exposures that arise from a securitisation scheme shall assign an inferred rating to all unrated positions that rank more senior than an externally rated securitisation exposure, which externally rated securitisation exposure shall serve as the reference securitisation exposure, provided that-

(i) the reference securitisation exposure shall in all respects be subordinated to the relevant unrated securitisation exposure;

(ii) the bank shall take into account any relevant credit enhancement when the bank assesses the relative subordination of the unrated exposure in relation to the reference securitisation exposure. For example, when the reference securitisation exposure benefits from any third-party guarantee or other credit enhancement, which protection is not available to the unrated exposure, the bank shall not assign an inferred rating to the said unrated exposure;

(iii) the maturity of the reference securitisation exposure shall be equal to or longer than the maturity of the relevant unrated exposure;

(iv) on a continuous basis, the bank shall update any inferred rating in order to reflect any changes in the external rating of the reference securitisation exposure;

(v) the external rating of the reference securitisation exposure shall comply with the requirements specified in subregulation (6) above.

(g) Securitisation exposure: internal assessment approach

When a bank extends facilities such as liquidity facilities or credit-enhancement facilities to a special-purpose institution involved in an asset-backed commercial paper programme, the bank may apply its internal assessment of the credit quality of the said exposures in order to calculate the bank's required amount of capital and reserve funds, provided that-

(i) the bank's internal assessment process shall comply with the relevant requirements specified in this paragraph (g) and in paragraph (h) below;

(ii) the bank shall map its internal assessment of exposures extended to the asset-backed commercial paper programme to equivalent external ratings issued by an eligible external credit assessment institution, which rating equivalents shall be used by the bank to determine the appropriate risk weights relating to the relevant exposure in terms of the ratings-based approach specified in paragraph (e) above;

(iii) based on the credit rating equivalent assigned by the bank to an eligible exposure, the bank shall assign the notional amount of the securitisation exposure extended to the asset-backed commercial paper programme to the appropriate risk weight specified in the rating-based approach in paragraph (e) above;

(iv) when, in the opinion of the Registrar, the bank's internal assessment process does not comply with the relevant requirements specified in this paragraph (g), or such further conditions as may be specified in writing by the Registrar, the bank shall in the calculation of its required amount of capital and reserve funds relating to all eligible exposures extended to an asset-backed commercial paper programme apply-

(A) the standard formula approach specified in paragraph (i) below; or

(B) the approach specified by the Registrar, which approach shall be based on the relevant requirements specified in paragraph (b)(xii)(D)(iii) above,

for such time and on such conditions as may be specified in writing by the Registrar.

(h) Securitisation exposure: conditions relating to a bank's internal assessment process

For the calculation of a bank's minimum required amount of capital and reserve funds relating to unrated exposures such as liquidity facilities or credit-enhancement facilities, which facilities are extended by the bank to an asset-backed commercial paper programme, the bank may use its internal assessments relating to the said exposures, provided that-

(i) the relevant asset-backed commercial paper programme-

(A) shall be externally rated, which rated exposures relating to the asset-backed commercial paper programme shall be subject to the ratings-based approach specified in paragraph (e) above;

(B) shall have in place-

(i) appropriate credit and investment guidelines, that is, underwriting standards;

(ii) a duly established collection process, which collection process, amongst other things-

(aa) shall consider the operational capability and credit quality of the relevant servicer;

(bb) shall prevent the co-mingling of funds;

(iii) sufficiently robust procedures in order to consider all sources of potential risk, including credit and dilution risk, when estimating the aggregate amount of potential loss relating to the assets/exposures to be purchased by the special-purpose institution, that is, when the credit enhancement provided by the seller is based only on credit-related losses, a separate reserve shall be established to cover any material risk of dilution;

(iv) structural features such as wind-down triggers for every pool of purchased assets/exposures in order to reduce the risk relating to a deterioration in the credit quality of the underlying pool of assets/exposures;

(ii) the bank's internal assessment-

(A) of the credit quality of the said securitisation exposure shall be based on criteria similar to the criteria used by an eligible external credit assessment institution for the particular exposure type and shall be equivalent to at least investment grade when initially assigned by the bank;

(B) shall correspond to the external credit ratings used by eligible external credit assessment institutions;

(iii) in order to ensure that a credit-enhancement facility is sufficient, the bank shall review historical information in respect of the assets/exposures transferred to the special-purpose institution, which review shall be based on information for a sufficient number of years and shall include matters such as-

(A) losses;

(B) delinquencies;

(C) dilution; and

(D) the turnover rate of receivables;

(iv) the bank-

(A) shall conduct-

(i) a credit analysis of the risk profile of the seller of the relevant assets/exposures, which analysis shall include matters such as-

(aa) past and expected future financial performance;

(bb) current market position;

(cc) expected future competitiveness;

(dd) leverage;

(ee) cash flow;

(ff) interest coverage;

(gg) debt rating;

(ii) a review of the seller's-

(aa) underwriting standards;

(bb) servicing capabilities;

(cc) collection processes;

(B) shall evaluate the characteristics of the underlying pool of assets/exposures, which evaluation shall include matters such as-

(i) the weighted average credit score;

(ii) any concentrations in respect of a particular obligor, industry or geographical region;

(iii) the granularity of the underlying pool of assets/exposures;

(C) shall apply the relevant internal assessment in the bank's internal risk management processes, including the bank's management information and economic capital systems;

(D) shall, subject to the provisions of item (E) below, demonstrate to the satisfaction of the Registrar-

(i) that the criteria, standards and methodology used in the bank's internal assessment process correspond with the relevant criteria, standards and methodology applied by the eligible external credit assessment institution that rated the relevant asset-backed commercial paper programme, provided that when the methodology or stress factors applied by the said eligible external credit assessment institution change, which change adversely affects the external rating of the programme's commercial paper, the bank shall consider the potential impact of the revised rating methodology or stress factors in order to determine whether the bank's internal assessments assigned to eligible exposures extended to the asset-backed commercial paper programme exposures remain relevant;

(ii) which internal assessment category corresponds to which external rating category used by the relevant eligible external credit assessment institution;

(E) shall not apply the rating methodology used by an external credit assessment institution to derive an internal assessment unless the rating process and rating criteria applied by the relevant external credit assessment institution are publicly available, provided that, subject to the prior written approval of and such conditions as may be specified in writing by the Registrar, the Registrar may allow a bank in exceptional cases when the rating process and rating criteria applied by the relevant external credit assessment institution are not publicly available, to derive an internal assessment in respect of a particular exposure extended by the bank to an asset-backed commercial paper programme;

(F) shall regularly-

(i) review its internal assessment process;

(ii) assess the validity of its internal assessments,

which review or assessment may be conducted by the bank's internal or external auditors, an eligible external credit assessment institution or the bank's risk management function, provided that when the review or assessment is conducted by the bank's internal auditors or risk management function, the said auditors/function shall be independent from the business line involved in the relevant asset-backed commercial paper programme and underlying customer relationships;

(G) shall track the performance of its internal assessments over time in order to-

(i) evaluate the performance of the bank's assigned internal assessments; and

(ii) make timely adjustments to the said internal assessments;

(v) the bank's internal assessment process-

(A) shall provide a meaningful differentiation and distribution of risk;

(B) shall include stress factors relating to credit enhancement, which stress factors shall be at least as conservative as the publicly available rating criteria applied by the major eligible external credit assessment institutions that rate the particular asset/exposure type being purchased into the particular asset-backed commercial paper programme;

(vi) when the commercial paper issued in terms of an asset-backed commercial paper programme is rated by two or more eligible external credit assessment institutions, the stress factors of which institutions require different levels of credit enhancement to achieve the same external rating, the bank shall apply the stress factor that requires the most conservative or highest level of credit protection. For example, when one eligible external credit assessment institution requires enhancement of 2,5 to 3,5 times historical losses for an asset type to be assigned a single A rating and another eligible external credit assessment institution requires 2 to 3 times historical losses, the bank shall use the higher range of stress factors in order to determine the appropriate level of credit enhancement;

(vii) in respect of each relevant asset-backed commercial paper programme, the programme administrator shall ensure that-

(A) the said asset-backed commercial paper programme is subject to prudent underwriting standards;

(B) an appropriate structure relating to each potential purchase transaction is in place, which structure-

(i) shall be used to determine whether or not the particular assets/ exposures should be purchased by the special-purpose institution;

(ii) shall deal comprehensively with-

(aa) the type of asset that may be purchased by the special-purpose institution;

(bb) the type and monetary value of exposures arising from the provision of liquidity facilities and credit-enhancement facilities;

(cc) the manner in which losses shall be absorbed;

(dd) matters relating to the legal and economic isolation of the assets/exposures transferred to the special-purpose institution;

(viii) the underwriting policy of the asset-backed commercial paper programme shall contain minimum eligibility criteria, which criteria-

(A) shall prevent the purchase of assets/exposures that are significantly past due or defaulted;

(B) shall limit-

(i) excess concentration to an individual obligor;

(ii) excess concentration to a geographic area;

(iii) the tenor of the assets to be purchased.

(i) Securitisation exposure: risk-weighted exposure calculated in terms of the standard formula approach

A bank-

(i) shall calculate its risk-weighted exposure in respect of any unrated securitisation exposure, which exposure is not subject to the internal assessment approach specified in paragraph (g) above, through the application of the formula and the risk components specified below.

$RWE = K \times 12,5$

where:

RWE is the relevant risk-weighted exposure amount

K is the capital requirement relating to the securitisation exposure, which capital requirement shall be based on the formulae and the risk components specified in paragraphs (j) to (o) below.

(ii) may reduce its calculated risk-weighted exposure when the bank obtains eligible risk mitigation instruments against the said securitisation exposure, provided that-

(A) the bank shall comply with the relevant requirements specified in subregulation (12);

(B) the bank shall only proportionally reduce the bank's capital requirement when the eligible credit risk mitigation instrument covers only first losses or losses on a proportional basis;

(C) in the case of proportional cover, the bank shall assume that the eligible credit risk mitigation instrument firstly covers the most senior portion of the securitisation exposure, that is, the most junior portion of the securitisation exposure shall be regarded as unprotected or unsecured.

For example, in the case of an originator-

(i) that obtains proportional cover in the form of cash collateral

Assume that-

(aa) the originating bank purchased a securitisation exposure of R10 000;

(bb) the purchased exposure is protected by a credit-enhancement facility in excess of K_{IRB};

(cc) no external or inferred rating in respect of the exposure is available;

(dd) the capital requirement in respect of the purchased securitisation exposure, calculated in terms of the standard formula specified in paragraph (j) below, is equal to R160, that is, the risk-weighted exposure amount is equal to R2 000 (R160 multiplied by 12,5);

(ee) the originating bank obtained collateral in the form of cash equal to R8 000, which cash collateral is denominated in Rand;

(ff) the percentage relating to the minimum capital requirement is equal to 8 per cent.

The capital requirement relating to the securitisation exposure is determined by multiplying the capital requirement calculated in terms of the standard formula, that is, R160, by the ratio of the adjusted exposure amount to the original exposure amount as illustrated below.

Step 1

E* = max {0, [E x (1 + He) - C x (1 - Hc - Hfx)]}

E* =max {0, [10 000 x (1 + 0) – 8 000 x (1 - 0 - 0)]}
= R2 000

where:

E*	is the relevant adjusted exposure amount after risk mitigation (R2 000)
E	is the relevant current exposure amount (R10 000)
He	is the relevant haircut in respect of the exposure
C	is the relevant current value of the collateral (R8 000)
Hc	is the relevant haircut in respect of the collateral (0)
Hfx	is the relevant haircut in respect of a mismatch between the collateral and the exposure (0)

Step 2

Capital requirement = (E* / E) x capital requirement determined in terms of the standard formula

That is R2 000 / R10 000 x R160 = R32.

(ii) that obtains proportional cover in the form of a guarantee

Assume that the information is the same as in the previous example except that the bank obtained a guarantee from a bank that qualifies for a risk weight of 10 per cent instead of cash collateral.

The protected portion of the securitisation exposure, that is, R8 000 will be assigned the risk weight of the guarantor, that is, 10 per cent.

The capital requirement in respect of the protected portion is equal to R8 000 x 10% x 8% = R64.

The capital requirement in respect of the unprotected portion, that is, R2 000, is equal to the share of the unprotected portion to the exposure amount, that is, R2 000 / R10 000 = 20%. Therefore the capital requirement is equal to R160 x 20% = R32.

The total capital requirement in respect of the protected and unprotected portions is equal to R64 (protected portion) + R32 (unprotected portion) = R96.

(iii) that obtains protection in respect of the most senior portion of an exposure

Assume that-

(aa) a bank that acts as an originator securitises a pool of loans equal to R100 000;

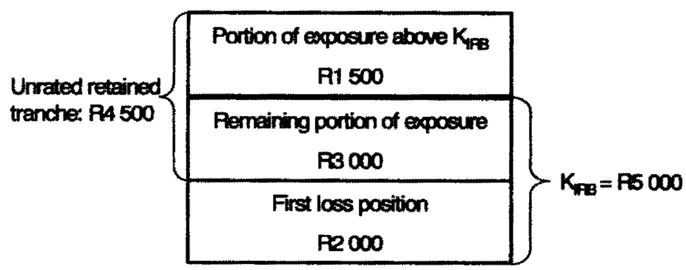
(bb) the K_{IRB} ratio relating to the underlying pool is equal to 5 per cent, that is, a capital requirement of R5 000;

(cc) the first loss facility is equal to R2 000;

(dd) the originating bank retained only the second most junior tranche, which tranche is unrated and equal to R4 500;

(ee) the risk weight relating to the retained tranche, calculated in terms of the standard formula, is equal to 820 per cent;

The position may be summarised as follows:



The bank's capital requirement without any protection is equal to the sum of the capital requirements for the portion of the tranche above K_{IRB} and the portion of the tranche below K_{IRB}, that is, R1500 x 820% x 8%= R984 **plus** the portion of the tranche below K_{IRB} that constitutes an impairment equal to R3 000 x 1 250% x 8% = R3 000 equals a total capital requirement for the unrated tranche of R3 984.

When the originating bank obtains cash collateral denominated in Rand equal to R2 500, the collateral will be deemed firstly to cover the most senior portion of the tranche, that is, the portion above K_{IRB}, which portion is fully protected and equal to R1 500.

Step 1

E* = max {0, [E x (1 + He) - C x (1 - Hc - Hfx)]} = max {0, [1 500 - 1 500]} = R0

where:

E*	is the relevant exposure value after risk mitigation (R0)
E	is the relevant current value of the exposure (R1 500)
C	is the relevant current value of the collateral (R1 500)
He	is the relevant haircut in respect of the exposure
Hc and Hfx	is the relevant haircut in respect of the collateral

Step 2

Capital requirement = (E* / E) x capital requirement determined in terms of the standard formula.

That is 0 x R984 = R0

The portion of the tranche below K_{IRB} is equal to R3 000, which portion is protected by the remaining cash collateral equal to R1 000.

The R1 000 cash collateral is allocated to the most senior portion of the R3 000 tranche.

Step1

E* = max {0, [3 000 x (1 + 0) – 1 000 x (1 - 0 - 0)]} = R2 000

Step 2

Capital requirement = (E* / E) x capital requirement determined in terms of the standard formula

That is R2 000/R3 000 x R3 000 = R2 000

The total capital requirement in respect of the unrated tranche is equal to R0 + R2 000 = R2 000

When the bank obtains an eligible unsecured guarantee of R2 500 instead of cash collateral the capital requirement is determined as specified below.

The most senior portion of the tranche is equal to R1 500, which portion is protected by the guarantee, that is, the portion is fully protected and is assigned a risk weight equivalent to an unsecured exposure to the guarantor, which risk weight is assumed to be equal to 20 per cent.

The capital requirement in respect of the most senior protected portion is R1 500 x 20% x 8%= R24.

The remaining portion of the tranche is equal to R3 000, the most senior part of which portion is protected by the remaining part of the guarantee, which remaining part is equal to R1 000.

Accordingly, the protected portion of the remaining portion is equal to R1 000 and the unprotected portion is equal to R2 000.

The risk weight of the guarantor is assigned to the protected portion, the capital requirement of which portion is equal to R1 000 x 20% x 8%= R16.

The capital requirement for the unprotected portion is equal to R2 000 x 1 250% x 8%= R2 000.

The total capital requirement in respect of the unrated tranche is equal to R24 (protected portion above KIRB) **plus** R16 (protected portion below KIRB) **plus** R2 000 (unprotected portion below KIRB) is **equal to** R2 040.

(j) Securitisation exposure: calculation of IRB capital requirement relating to a specific tranche

The capital requirement relating to a specific tranche shall be equal to the amount of exposures that have been securitised **multiplied by** the higher of-

(i) 0,0056 x T; or

(ii) (S[L + T] – S[L])

provided that when the bank holds only a proportional interest in a particular tranche, the bank's capital requirement in respect of the specific portion held shall be equal to the pro-rata share of the capital requirement calculated in respect of the entire tranche.

where:

S[.] is a standard formula, which standard formula is defined as-

$$S[L] = \left\{ \begin{array}{ll} L & \text{when } L \quad K_{IRB} \\ K_{IRB} + K[L] \text{ N } K[K_{IRB}] + (d \quad K_{IRB}/\omega)(1\text{-}e^{\omega} \; (K_{IRB} \text{ N}L)/K_{IRB} \quad) & \text{when } K_{IRB} < L \end{array} \right\}$$

w
here:

$$h = (1 - K_{IRB} \; / \; LGD \;)^{N}$$

$$c = K_{IRB} \; /(1 - h)$$

$$v = \frac{(LGD \;\; - K_{IRB}\,)\,K_{IRB} \;\; + \; 0.25 \; (1 - LGD \;\;)\,K_{IRB}}{N}$$

$$f = \left(\frac{v \; + \; K_{IRB}^{\;\;\;2}}{1 - h} - c^{2} \right) + \frac{(1 - K_{IRB}\,)K_{IRB} \;\; - \; v}{(1 - h)\,\tau}$$

$$g = \frac{(1 - c)c}{f} - 1$$

$$a = g \cdot c$$

$$b = g \cdot (1 - c\,)$$

$$d = 1 - \;\; (1 - h\,) \cdot (1 - Beta \;\; [K_{IRB} \; ; \; a, \; b])$$

$$K[L] = (1 - h\,) \cdot ((1 - \; Beta \;\; [L; \; a, b])\; L \; + Beta \;\; [L; a + 1, b\,]\,c\,).$$

h	shall be equal to nil when the securitisation scheme relates to retail exposures
v	shall be equal to nil when the securitisation scheme relates to retail exposures
Beta [L; a, b]	is the cumulative beta distribution with parameters a and b evaluated at L
τ	is a constant value equal to 1 000
ω	is a constant value equal to 20
K_{IRB}	is the capital requirement relating to the underlying exposure, which capital requirement shall be expressed as a ratio calculated in accordance with the relevant requirements specified in paragraph (k) below
L	is the credit-enhancement level, which credit-enhancement level shall be expressed as a ratio calculated in accordance with the relevant requirements specified in paragraph (l) below
T	is the thickness of the exposure, which thickness shall be expressed as a ratio calculated in accordance with the relevant requirements specified in paragraph (m) below
N	is the effective number of exposures in the pool calculated in accordance with the formula specified in paragraph (n) below
LGD	is the exposure-weighted average loss-given-default ratio calculated in accordance with the formula specified in paragraph (o) below

(k) Securitisation exposure: IRB capital requirement relating to an underlying exposure, denoted by K_{IRB}

The variable K_{IRB} -

(i) is a ratio, which ratio shall be calculated as-

(A) the capital requirement relating to the relevant underlying exposures in the pool, that is, the amount of capital that the bank would have been required to maintain if the bank directly held or was directly exposed to the underlying assets/exposures included in the pool, which amount of required capital-

(i) shall be calculated in accordance with the relevant IRB approach envisaged in subregulation (10);

(ii) shall include the amount of expected loss relating to any of the said underlying exposures;

(iii) shall include the effects of any eligible risk-mitigation instruments held against the underlying assets/ exposures included in the pool,

divided by

(B) the aggregate amount of exposures included in the pool, that is, the sum of all drawn amounts relating to the relevant securitised exposures plus the EAD amount associated with any undrawn commitments related to the securitised exposures.

(ii) shall be expressed in decimal form, that is, a capital requirement equal to 15 per cent of the pool shall be expressed as 0,15

provided that-

(A) in the case of a structure that involves a special-purpose institution, all the assets of the special-purpose institution that are related to the securitisation scheme shall be included in the bank's calculation of exposures included in the pool, including assets in which the special-purpose institution invested for a reserve account, such as a cash collateral account;

(B) when the risk weight relating to the relevant securitisation exposure is equal to 1 250 per cent, the bank shall deduct from its capital and reserve funds the relevant securitisation exposure in accordance with the relevant requirements specified in paragraph (q) read with the relevant provisions of subregulation (6)(j);

(C) when the bank raised a specific credit impairment or received a non-refundable purchase price discount in respect of an exposure included in the pool, the bank shall in the calculation of the amounts specified in paragraph (k)(i) above apply the gross amount relating to the exposure, that is, the amount before the relevant specific credit impairment and/or non-refundable purchase price discount is taken into consideration, provided that the bank may in the case of an asset that defaulted reduce the amount that constitutes an impairment against the capital and reserve funds of the bank, which impairment relates to the said securitisation exposure, with the said credit impairment raised or non-refundable purchase price discount.

(l) Securitisation exposure: matters relating to the extent of credit enhancement, denoted by L

The variable L -

(i) is a ratio, which ratio shall be calculated as-

(A) the aggregate amount relating to all securitisation exposures that are subordinated in favour of the relevant securitisation tranche in respect of which the capital requirement is calculated;

divided by

(B) the aggregate amount of exposures included in the pool;

(ii) shall be expressed in decimal form;

(iii) shall exclude-

(A) the effects of any tranche-specific credit enhancement such as third-party guarantees that benefit only a single tranche;

(B) any amount relating to gain-on-sale and/or credit enhancing interest-only strips that are associated with the securitisation scheme;

(C) any instrument in respect of which the bank is unable to determine the current fair value;

(D) any unfunded reserve accounts, that is, accounts that will be funded by future receipts from the underlying exposures;

(iv) may include-

(A) the fair value, that is, the current value prior to the amount that relates to future exposure, of any interest-rate or currency swap contract, which contract is subordinated to the securitisation exposure in question;

(B) the amount relating to any reserve account funded by accumulated cash flows from the underlying exposures provided that the said account shall be subordinated to the tranche in question.

(m) Securitisation exposure: matters relating to thickness of exposure, denoted by T

The variable T -

(i) is a ratio, which ratio shall be calculated as-

(A) the nominal amount relating to the particular tranche;

divided by

(B) the notional amount of exposures included in the pool of exposures;

(ii) shall include-

(A) the potential future exposure arising from an interest-rate contract or currency swap contract;

(B) any positive current value of an interest-rate contract or currency swap contract.

(n) Securitisation exposure: matters relating to effective number of exposures, denoted by N

The effective number of exposures shall be calculated in accordance with the formula specified below.

$$N = \frac{(\sum_i EAD_i)^2}{\sum_i EAD_i^2}$$

where:

EAD_i is the exposure-at-default amount associated with the i^{th} instrument in the pool of exposures, provided that-

(i) the bank shall consolidate multiple exposures to the same obligor, that is, the aggregate amount shall be treated as a single instrument;

(ii) in the case of re-securitisation, that is, the securitisation of securitised exposures, the formula shall apply to the number of securitisation exposures in the securitised pool and not the number of underlying exposures in the original pools;

(iii) when-

(A) the share of the portfolio associated with the largest exposure, C_1, is available, the bank may compute N as $1/C_1$;

(B) the share of the portfolio associated with the largest exposure, C_1, is no more than 0,03, that is, 3 per cent of the underlying pool, the bank may deem the LGD ratio to be equal to 0,50, that is, 50 per cent, instead of the exposure-weighted average LGD ratio calculated in accordance with the relevant requirements specified in paragraph (o) below, and calculate the effective number of exposures, that is, N, in accordance with the formula specified below.

$$N = \left(C_1 C_m + \left(\frac{C_m - C_1}{m-1} \right) \max\{1 - mC_1, 0\} \right)^{-1}$$

where:

C_m is the share of the pool that corresponds to the sum of the largest 'm' exposures. For example, a 15 per cent share corresponds to a value of 0.15.

m is the threshold determined by the bank

(C) C_1 is available and does not exceed 3 per cent of the underlying pool, the bank may deem N to be equal to 1/ C_1 and the LGD ratio to be equal to 50 per cent, instead of calculating the respective variables in accordance with the relevant requirements respectively specified in paragraphs (n) and (o).

(o) Securitisation exposure: matters relating to exposure-weighted average loss-given-default ratio, denoted by LGD

The exposure-weighted average loss-given-default ratio ("LGD") shall be calculated in accordance with the formula specified below.

$$LGD = \frac{\sum_i LGD_i \cdot EAD_i}{\sum_i EAD_i}$$

where:

LGD_i is the average LGD ratio associated with all exposures relating to the i^{th} obligor, provided that-

(i) in the case of re-securitisation, that is, the securitisation of a securitisation exposure, the LGD ratio relating to the underlying securitised exposures shall be deemed to be equal to 100 per cent;

(ii) when the risk of default and the risk of dilution relating to purchased receivables are treated in an aggregate manner, that is, a single reserve or over-collateralisation was established to absorb losses relating to the risk of default and the risk of dilution within the securitisation scheme, the calculation of the relevant LGD ratio shall be based on the weighted average LGD ratio relating to default risk and a 100 per cent LGD ratio relating to dilution risk, that is, the resultant weights shall be the stand alone IRB capital requirement relating to default risk and dilution risk.

(p) Securitisation exposures subject to an early amortisation mechanism

A bank that acts as an originator shall comply with the relevant requirements specified in subregulation (6)(h)(xi) above relating to the investors' interest, provided that the bank's capital requirement relating to the investors' interest shall be equal to-

(i) the investors' interest, **multiplied by**

(ii) the appropriate credit-conversion factor, **multiplied by**

(iii) K_{IRB}.

(q) *Deductions against capital and reserve funds*

A bank that adopted the foundation IRB approach for the measurement of the bank's exposure to credit risk shall in addition to the relevant amounts specified in subregulation (6)(j) above deduct from the bank's capital and reserve funds such amounts as may be specified in table 16 below.

Table 16

Deductions against capital and reserve funds
50 per cent against primary share capital and primary unimpaired reserve funds and 50 per cent against secondary capital and secondary unimpaired reserve funds
The amount by which a bank's aggregate expected loss amount, calculated in accordance with the relevant provisions of subregulation (21), exceeds the bank's eligible provisions
Any amount relating to expected loss in respect of equity exposures subject to the PD/LGD approach specified in regulation 31

(12) *Credit-risk mitigation: foundation IRB approach*

(a) *On-balance-sheet netting*

When a bank that adopted the foundation IRB approach for the measurement of the bank's exposure to credit risk in respect of positions held in the bank's banking book enters into a netting agreement in respect of loans and deposits as envisaged in subregulation (7)(a) above, the bank shall calculate its risk exposure in accordance with the provisions of the comprehensive approach specified in subregulation (9)(b) above, provided that the bank-

(i) shall at all times comply with the relevant conditions specified in subregulation (7)(a) above;

(ii) shall recognise the effect of any currency mismatch in accordance with the relevant requirements specified in subregulation (9)(b) above;

(iii) shall recognise the effect of a maturity mismatch in accordance with the relevant requirements specified in subregulation (9)(e) above.

(b) *Collateral*

(i) Unless specifically otherwise provided, a bank that adopted the foundation IRB approach for the measurement of the bank's exposure to credit risk in respect of positions held in the bank's banking book-

(A) shall apply the comprehensive approach prescribed in subregulation (9)(b) above in order to calculate the bank's adjusted exposure;

(B) shall at all times comply with the relevant minimum requirements-

(i) prescribed in subregulation (7)(b)(iii) above in respect of eligible financial collateral;

(ii) prescribed in subparagraph (ii)(B) below in respect of the further categories of collateral qualifying as eligible collateral in terms of the foundation IRB approach.

(ii) *Eligible collateral*

(A) Instruments qualifying as eligible financial collateral in terms of the standardised approach shall qualify as eligible collateral in terms of the foundation IRB approach, provided that a bank that adopted the foundation IRB approach-

(i) shall at all times comply with the relevant minimum requirements specified in subregulation (7)(b)(iii) above; or

(ii) shall be able to calculate and comply with the relevant minimum requirements relating to its own estimates of LGD and EAD specified in subregulations (13)(b)(v)(C) and (13)(b)(v)(D) below.

(B) In addition to eligible financial collateral recognised in terms of the standardised approach, in subregulation (7)(b), the collateral instruments specified below shall be recognised as eligible collateral in terms of the foundation IRB approach in respect of a bank's exposures to corporate institutions, sovereigns or banks, provided that the bank shall comply with the requirements specified below.

(i) Financial receivables, excluding receivables arising from securitisation schemes, sub-participations or credit-derivative instruments.

When a bank obtains as collateral in respect of its exposure to a corporate institution, sovereign or bank financial receivables other than receivables arising from securitisation schemes, sub-participations or credit-derivative instruments, such collateral shall be recognised as eligible collateral, provided that-

(aa) the said financial receivables-

(i) shall consist of claims with an original maturity of less than or equal to one year, the repayment of which claim shall be dependent upon the commercial or financial flows related to the underlying assets of the obligor;

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

(bb) the legal mechanism in terms of which the collateral was obtained shall be robust and shall ensure that the bank has clear rights over the proceeds from the collateral.

The bank shall take all steps necessary to fulfil requirements relating to the enforceability of the bank's security interest, such as the registration of a security interest with a registrar.

(cc) the collateralised transaction shall be duly documented, which documentation-

(i) shall be binding on all relevant parties;

(ii) shall be legally enforceable in all relevant jurisdictions;

(iii) shall be legally well founded;

(iv) shall be reviewed on a regular basis in order to ensure the transaction's continued enforceability;

(v) shall provide the bank with legal authority to sell or assign the receivables to other parties without the consent of the receivables' obligors;

(vi) shall comprehensively deal with the collection of receivable amounts in distressed situations;

(dd) the bank shall have in place clear and robust procedures, adequate-

(i) to timely collect the proceeds of the relevant collateral;

(ii) to observe any legal conditions required to identify any default event of the obligor;

(iii) to identify any event of financial distress of the relevant obligor;

(iv) to monitor-

(a) reports relating to ageing;

(b) control over trade documents;

(c) the frequency of audits relating to collateral;

(d) the confirmation of accounts;

(e) the control over the proceeds of accounts paid;

(f) the analyses in respect of dilution;

(ee) the bank shall have in place sound and robust risk-management processes, which risk-management processes-

(i) shall be adequate to determine the credit risk inherent in the receivables, including concentration risk.

When the bank relies on the obligor to determine the credit risk relating to its customers, the bank shall review the credit policy of the obligor to determine the policy's soundness and credibility.

(ii) shall include an analysis of the borrower's business and industry type;

(iii) shall be adequate to identify any correlation between the obligor and the receivables pledged as security, provided that no receivables relating to affiliates of a particular obligor, including subsidiaries and employees, shall be recognised as eligible collateral;

(ff) the bank shall ensure that the margin between the amount of the exposure and the value of the receivables takes into account all relevant factors, including the cost of collection, correlations, concentration within the receivables pool pledged as security and potential concentration risk within the bank's total exposures.

(ii) Commercial real estate- and residential real estate, excluding income producing real estate that meets the requirements relating to specialised lending specified in subregulation (11)(c)(i)(D) above.

When a bank obtains as collateral in respect of its exposure to a corporate institution, sovereign or bank commercial real estate or residential real estate, such collateral shall be recognised as eligible collateral, provided that-

(aa) the risk relating to the obligor shall not materially be dependent upon the performance of the underlying property or project but rather on the underlying capacity of the obligor to repay the debt due from other sources, that is, the repayment of the facility shall not materially be dependent on any cash flow generated by the underlying commercial real estate or residential real estate serving as collateral;

(bb) the value of the said collateral shall not materially be dependent on the performance of the obligor;

(cc) the bank's claim in respect of the said collateral-

(i) shall be legally enforceable in all relevant jurisdictions;

(ii) shall reflect a perfected lien, that is, all legal requirements shall be fulfilled in order to enforce the bank's claim;

(iii) shall be realisable within a reasonable timeframe;

(dd) the bank-

(i) shall determine and apply the fair value of the collateral, that is, the value at which the property may be sold under private contract between a willing seller and a willing buyer on an arms-length basis, or less than the said fair value;

(ii) shall monitor the value of the collateral on a regular basis but not less frequently than once every year;

(iii) may use statistical methods such as reference to house price indices or sampling in order to update the bank's estimates of fair value or identify collateral that may have declined in value;

(iv) shall make use of the services of a qualified professional person to value a particular property when information indicates that the value of the said property may have materially declined relative to general market prices, or when a credit event such as a default has occurred;

(v) shall duly document-

(a) the types of commercial real estate and residential real estate that the bank is willing to accept as collateral;

(b) the bank's lending policies, including the advance rates, in respect of commercial real estate or residential real estate as collateral;

(vi) shall ensure that the property is adequately insured against damage or deterioration;

(vii) shall monitor on an ongoing basis-

(a) the extent of any permissible preferred claims such as tax in respect of the property;

(b) the risk of environmental liability arising in respect of the collateral such as the presence of toxic material on the property.

(iii) Leases other than leases that expose the bank to residual risk

When a bank obtains collateral in the form of a lease agreement in respect of instruments/ assets that qualify as eligible collateral in terms of the foundation IRB approach, such a lease agreement shall be recognised as eligible collateral, provided that the bank shall in addition to the relevant minimum requirements relating to the relevant type of instrument/asset ensure that-

(aa) the lessor has in place a robust risk-management process, which risk management process shall comprehensively address matters relating to-

(i) the location of the asset;

(ii) the use of the asset;

(iii) the age and condition of the asset;

(iv) the asset's planned obsolescence;

(bb) the lessor has in place a robust legal framework, which legal framework shall ensure that-

(i) the legal ownership of the lessor in respect of the asset is well established;

(ii) the lessor is able to exercise its rights as owner in a timely manner;

(cc) the difference between the rate of depreciation of a physical asset and the rate of amortisation of the lease payments is not material, causing the risk mitigation effect of the leased asset to be overstated;

(iv) Leases that expose the bank to residual risk

When a bank obtains collateral in the form of a lease agreement in respect of instruments/ assets that qualify as eligible collateral in terms of the foundation IRB approach, which lease agreement exposes the bank to residual risk, that is, the bank is exposed to a potential loss due to, for example, a decline in the fair value of the equipment below the residual estimate at the inception of the lease agreement, the bank shall risk weight the relevant exposure in accordance with the relevant requirements specified in subparagraph (iii)(C) below.

(v) Physical collateral other than the types of collateral specified above, excluding any physical assets acquired by the reporting bank as a result of default by an obligor in respect of an underlying exposure, specified in writing by the Registrar, provided that-

(aa) a liquid market shall exist in respect of the said collateral in order to ensure that the collateral can be liquidated in an expeditious and economically efficient manner;

(bb) a well established market with publicly available market prices relating to the said collateral shall exist and the amount realised by the reporting bank in respect of the said collateral shall not substantially deviate from the said market prices;

(cc) except for preferential rights in respect of tax obligations or wages of employees, the bank shall have a priority claim in respect of the proceeds of the said collateral;

(dd) the relevant loan agreement shall include a detailed description of the said collateral and detailed specifications in respect of the manner and frequency of revaluation;

(ee) the bank shall have in place robust policies, processes and procedures relating to physical collateral, which policies, processes and procedures-

(i) shall in the case of inventories such as raw materials or work-in-progress, and equipment, ensure that the bank conducts regular physical inspections of the said collateral;

(ii) shall be subject to regular and appropriate independent review;

(ff) the bank-

(i) shall duly document the types of physical collateral and loan-to-value or lending-to-value ratios acceptable to the bank;

(ii) shall comply with all the relevant minimum requirements relating to commercial real estate and residential real estate specified in sub-item (ii) above and such further conditions as may be specified in writing by the Registrar in respect of such a further category of physical assets qualifying as eligible collateral.

(iii) *Risk weighting*

When a bank that adopted the foundation IRB approach for the measurement of the bank's exposure to credit risk obtains-

(A) eligible financial collateral in respect of its exposures to corporate institutions, sovereigns or banks, the bank-

(i) shall calculate an adjusted exposure (E*) in accordance with the relevant formulae specified in subregulation (9)(b) above, provided that the bank shall comply with the relevant requirements that apply to the said formulae;

(ii) shall in the case of transactions other than repurchase and resale agreements subject to master netting agreements, calculate an effective loss-given-default ratio applicable to the collateralised transaction through the application of the formula specified below.

$$LGD^* = LGD \times (E^*/E)$$

where:

LGD* is the effective loss-given-default ratio

LGD shall be equal to 45 per cent, that is, the LGD ratio that applies to a senior unsecured exposure

E is the relevant current value of the exposure

(iii) shall in the case of repurchase and resale agreements subject to master netting agreements calculate an adjusted exposure (E*) in accordance with the relevant directives specified in subregulation (9)(b)(ix), which adjusted exposure shall be deemed to represent EAD, that is, the bank shall not recognise the impact of collateral obtained in respect of the said transactions through an adjustment to LGD.

Similar to a bank that adopted the comprehensive approach in respect of collateral obtained in terms of the standardised approach, a bank that complies with the relevant requirements specified in subregulation (9)(b)(xiv) relating to repurchase and resale agreements, may apply a haircut of zero per cent in respect of the said agreements.

(B) collateral in respect of the bank's corporate exposure, which collateral is recognised as eligible collateral in terms of the foundation IRB approach but not in terms of the standardised approach, the bank shall, subject to the provisions of item (C) below, in the case of a senior corporate exposure, divide the senior exposure into-

(i) a fully collateralised portion

The bank shall subsequently calculate the ratio of the current value of the collateral received to the current value of the exposure through the application of the formula specified below.

Ratio = C/E

where:

C is the relevant current value of the collateral received

E is the relevant current value of the exposure

When the said calculated ratio is below the threshold levels denoted **C***, specified in table 17 below, the LGD ratio shall be 45 per cent, that is, the LGD ratio shall be similar to the LGD ratio in respect of an unsecured corporate exposure.

When the said calculated ratio exceeds a higher threshold denoted **C****, that is, the bank has an over-collateralised position, the bank shall, based on relevant type of collateral, assign to the relevant exposure the LGD ratios specified in table 17 below.

Table 17

	Minimum LGD	**Required minimum collateralisation level of the exposure (C*)**	**Required level of over-collateralisation for full LGD recognition (C**)**
Receivables	35%	0%	125%
Commercial real estate and/or residential real estate	35%	30%	140%
Other collateral	40%	30%	140%

(ii) an uncollateralised portion

The portion of the exposure not covered in terms of sub-item (i) above shall be regarded as unsecured and the bank shall assign to the said portion a LGD ratio equal to 45 per cent.

(C) eligible collateral in the form of a lease agreement, which lease agreement exposes the bank to residual risk, the bank shall risk weight-

(i) the discounted lease payments based on the financial strength, that is, the PD ratio, of the lessee, and the LGD ratio specified by the Registrar;

(ii) the residual value at 100 per cent.

(c) *Pools of collateral*

When a bank obtained both eligible financial collateral and other eligible collateral, that is, collateral that is regarded as eligible collateral in terms of the foundation IRB approach but not in terms of the standardised approach, in respect of the bank's exposure to corporate institutions, sovereigns or banks, the bank-

(i) shall subdivide the adjusted value of the exposure, after the bank has applied the relevant haircut relating to eligible financial collateral, into the relevant portions covered by only one type of collateral, that is, the bank shall divide the exposure into a portion covered by-

(A) eligible financial collateral;

(B) receivables;

(C) collateral consisting of commercial real estate or residential real estate;

(D) other collateral;

and, when relevant, an unsecured portion.

When the ratio of the sum of the values of commercial real estate or residential real estate, and other collateral, to the reduced exposure, after the effect of eligible financial collateral and collateral consisting of receivables has been recognised, is below the relevant threshold level specified in paragraph (b)(iii)(B)(i) above, the bank shall assign to the relevant exposure an LGD ratio relating to an unsecured exposure, that is, 45 per cent.

(ii) shall separately calculate the risk-weighted exposure in respect of each fully secured portion of exposure in order to calculate the exposure's effective LGD and aggregated risk-weighted amount.

(d) Guarantees

(i) Minimum requirements

As a minimum, a bank that adopted the foundation IRB approach for the recognition of risk mitigation in respect of guarantees-

(A) shall continuously comply with the relevant requirements specified in subregulation (7)(c)(iv) above;

(B) shall, except in the case of retail exposures and purchased retail receivables, use the LGD ratios specified in writing by the Registrar in respect of the bank's various exposures;

(C) shall not in the calculation of the bank's risk-weighted exposure reflect the effect of double default otherwise than in accordance with the relevant requirements specified in paragraph (g) below, that is, the adjusted risk weight relating to a particular exposure shall not be less than a comparable direct exposure to the relevant guarantor unless the bank calculates the said adjusted risk weight in accordance with the relevant requirements specified in paragraph (g) below,

provided that whenever a guarantee obtained in respect of an exposure results in a higher capital requirement for the reporting bank than before the recognition of such guarantee, the reporting bank may ignore the effect of the said guarantee.

(ii) Eligible guarantors

In addition to the eligible guarantors recognised in terms of the standardised approach, in subregulation (7)(c), a bank that adopted the foundation IRB approach for the recognition of risk mitigation relating to guarantees obtained in respect of its exposures to corporate institutions, sovereigns, banks or purchased receivables may also recognise the effect of a guarantee obtained from a guarantor internally rated by the bank, provided that-

(A) the PD ratio of the said internally rated guarantor shall be equivalent to or better than a rating of A-;

(B) the said guarantee shall comply with the relevant minimum requirements specified in subregulation (7)(c) above;

(C) for purposes of calculating the minimum required amount of capital and reserve funds of a branch in terms of the provisions of the Banks Act, 1990, read with these Regulations, no guarantee received from the parent foreign institution or any other branch of the parent foreign institution in respect of an exposure incurred by the branch in the Republic shall be regarded as an eligible guarantee.

(iii) Risk weighting

When a bank that adopted the foundation IRB approach for the measurement of the bank's risk-weighted credit exposure obtains-

(A) protection from an eligible guarantor in respect of the bank's credit exposure to a corporate institution, sovereign or bank the bank-

(i) shall divide the relevant exposure into a protected portion and an unprotected portion;

(ii) shall in respect of the protected portion apply-

(aa) the risk-weight function relating to the relevant guarantor; and

(bb) the PD ratio relating to the relevant guarantor, or a higher PD ratio relating to a risk grade between the underlying obligor and the relevant guarantor when the bank deems a complete substitution approach inappropriate,

provided that, based on its seniority or any collateralisation of a guaranteed commitment, the bank may replace the LGD ratio of the underlying transaction with the relevant LGD ratio relating to the said guaranteed position;

(iii) shall in respect of the unprotected portion, apply the risk weight relating to the underlying obligor;

(iv) shall in the case of-

(aa) proportional protection comply with the relevant requirements specified in subregulation (9)(c)(v) above;

(bb) a currency mismatch between the underlying obligation and the protection obtained comply with the relevant requirements specified in subregulation (9)(c)(vi) above.

(B) protection in the form of a guarantee in respect of a retail exposure or pool of retail exposures, the bank may reflect the risk reducing effect of the guarantee through an adjustment to the relevant PD ratio or LGD ratio, provided that the bank-

(i) shall comply with the relevant minimum requirements specified in subregulation (14)(c)(i) below;

(ii) shall apply the relevant adjustment to the PD ratio or LGD ratio in a consistent manner in respect of a given type of guarantee, and over time.

(C) protection in the form of a guarantee in respect of purchased receivables, the bank shall in the case of a guarantee-

(i) that covers both default risk and dilution risk, substitute the risk weight relating to default risk and dilution risk for the risk weight of the guarantor;

(ii) that covers only default risk or dilution risk, but not both, substitute the relevant risk weight relating to default risk or dilution risk for the risk weight of the guarantor, and add the relevant capital requirement for the other component;

(iii) that covers only a portion of the default risk and/or dilution risk, substitute the risk weight in respect of the protected exposure in accordance with the relevant directives specified above, and add the relevant risk weights relating to the unprotected exposure.

(D) protection against dilution risk in respect of purchased receivables, the bank may apply the double default approach specified in paragraph (g) below in order to calculate the required risk-weighted asset amount for dilution risk, provided that-

(i) the bank shall at all times comply with the relevant requirements specified in paragraph (g) below;

(ii) PD_0 shall be equal to the estimated EL amount;

(iii) LGD_g shall be equal to 100 per cent;

(iv) the bank shall determine the effective maturity of the relevant exposure in accordance with the relevant requirements specified in subregulation (11)(d)(vi)(A)(ii).

(e) *Credit-derivative instruments*

(i) *Minimum requirements*

As a minimum, a bank that adopted the foundation IRB approach for the recognition of risk mitigation relating to credit protection obtained in the form of a credit-derivative instrument-

(A) shall comply with the relevant requirements specified in subregulation (9)(d);

(B) shall, except in the case of retail exposures and purchased retail receivables, use the LGD ratios in respect of its various exposures as specified in writing by the Registrar;

(C) shall not in the calculation of the bank's risk-weighted exposure reflect the effect of double default otherwise than in accordance with the relevant requirements specified in paragraph (g) below, that is, the adjusted risk weight relating to a particular exposure shall not be less than a comparable direct exposure to the relevant protection provider unless the bank calculates the said adjusted risk weight in accordance with the relevant requirements specified in paragraph (g) below,

provided that whenever credit protection obtained in respect of an exposure results in a higher capital requirement for the reporting bank than before the recognition of such credit protection, the reporting bank may ignore the effect of the said credit protection.

(ii) *Eligible protection providers*

In addition to the eligible protection providers recognised in terms of the standardised approach, in subregulation (9)(d)(iii), a bank that adopted the foundation IRB approach for the recognition of risk mitigation relating to credit-derivative instruments obtained in respect of corporate institutions, sovereigns or banks may also recognise the effect of protection obtained from a protection provider with an internal PD rating equal to or better than A-, provided that the said protection shall comply with the relevant minimum requirements specified in subregulation (9)(d)(xi) above.

(iii) Risk weighting

When a bank that adopted the foundation IRB approach for the measurement of the bank's risk-weighted credit exposure obtains-

(A) protection from an eligible protection provider in respect of the bank's credit exposure to a corporate institution, sovereign or bank, the bank-

(i) shall divide the relevant exposure into a protected portion and an unprotected portion;

(ii) shall in respect of the protected portion, apply-

(aa) the risk-weight function relating to the relevant protection provider; and

(bb) the PD ratio relating to the relevant protection provider, or a higher PD ratio relating to a risk grade between the underlying obligor and the relevant protection provider when the bank deems a complete substitution approach inappropriate,

provided that, based on its seniority or any collateralisation of a protected exposure, the bank may replace the LGD ratio of the underlying transaction with the relevant LGD ratio relating to the said protected position;

(iii) shall in respect of the unprotected portion, apply the risk weight relating to the underlying obligor;

(iv) shall in the case of-

(aa) proportional protection comply with the relevant requirements specified in subregulation (9)(d)(x) above;

(bb) a currency mismatch between the underlying obligation and the protection obtained comply with the relevant requirements specified in subregulation (9)(d)(xi) above;

(B) protection in respect of a retail exposure or pool of retail exposures, the bank may reflect the risk reducing effect of the protection through an adjustment to the relevant PD ratio or LGD ratio, provided that the bank-

(i) shall comply with the relevant minimum requirements specified in subregulation (14)(d)(i) below;

(ii) shall apply the relevant adjustment to the PD ratio or LGD ratio in a consistent manner in respect of a given type of credit-derivative instrument, and over time.

(C) protection against dilution risk in respect of purchased receivables, the bank may apply the double default approach specified in paragraph (g) below in order to calculate the required risk-weighted asset amount for dilution risk, provided that-

(i) the bank shall at all times comply with the relevant requirements specified in paragraph (g);

(ii) PD_0 shall be equal to the estimated EL amount;

(iii) LGD_g shall be equal to 100 per cent;

(iv) the effective maturity of the relevant exposure shall be determined in accordance with the relevant requirements specified in subregulation (11)(d)(vi)(A)(ii).

(f) *Maturity mismatches*

A bank that adopted the foundation IRB approach for the recognition of risk mitigation shall comply with the relevant requirements specified in subregulation (9)(e) in respect of any maturity mismatches between the bank's exposure to credit risk and the risk mitigation obtained in respect of the said credit exposure.

(g) *Double default*

(i) In respect of each eligible exposure, a bank that obtained the prior written approval of the Registrar to adopt the foundation IRB approach for the measurement of the bank's exposure to credit risk may apply either the substitution approach envisaged in paragraphs (d) and (e) above or double default approach specified in this paragraph (g), provided that a bank that wishes to apply the double default approach-

(A) shall continuously comply with the relevant minimum requirements specified in this paragraph (g);

(B) in respect of the said eligible exposure shall calculate the relevant risk-weighted exposure amount and any related required amount of capital and reserve funds in accordance with the formulae and requirements specified in subparagraph (iv) below;

(C) shall calculate the risk weights and required amount of capital and reserve funds relating to all exposures to a particular obligor, other than eligible exposures envisaged in this paragraph (g), in accordance with the relevant requirements specified in subregulations (11) and (12), including any risk weight or required amount of capital and reserve funds relating to any unhedged or unprotected portion of an exposure in respect of which the hedged or protected portion of the said exposure is subject to the provisions of this paragraph (g);

(D) may apply the said double default approach to any eligible exposure, irrespective whether the exposure is held in the bank's banking book or trading book.

(ii) Eligible exposure

A bank that obtained the prior written approval of the Registrar to adopt the IRB approach for the measurement of the bank's exposure to credit risk may apply the double default approach only when-

(A) the relevant underlying obligation or exposure constitutes-

(i) a corporate exposure as envisaged in subregulation (11)(c)(i), provided that no specialised lending exposure subject to and mapped into the risk grades specified in subregulation (11)(d)(iii)(C) shall be eligible for treatment in terms of the double default approach;

(ii) a claim on a public-sector entity, provided that no sovereign exposure shall be eligible for treatment in terms of the double default approach;

(iii) a loan extended to a small business and categorised as a retail exposure as envisaged in subregulation (11)(c)(iv)(A)(iii).

Provided that in no case shall any exposure in respect of which the underlying obligation relates to-

(aa) a financial entity or institution as envisaged in subparagraph (iii)(B)(i) below; or

(bb) a member of the same group as the protection provider,

be eligible for treatment in terms of the double default approach.

(B) the protection provider is a financial entity or institution specified in subparagraph (iii)(B)(i) below;

(C) the bank obtained protection in respect of the said underlying exposure and the protection obtained relates to-

(i) a single name unfunded credit-derivative instrument such as a credit-default swap;

(ii) a single name guarantee;

(iii) a first-to-default basket product, in which case the double default approach shall be applied to the asset within the basket with the lowest risk-weighted amount;

(iv) an *n*th-to-default basket product, in which case the protection obtained shall be eligible in terms of the double default approach only when the reporting bank also obtained eligible (n–1)th default protection or (n–1) of the assets within the basket have already defaulted,

that is, under no circumstances shall protection relating to-

(aa) multiple name credit derivative instruments, other than *nth*-to-default basket products;

(bb) multiple name guarantees;

(cc) index-based products;

(dd) synthetic securitisation and other tranched products that fall within the scope of the exemption notice relating to securitisation schemes;

(ee) covered bonds to the extent such instruments are externally rated; and

(ff) funded credit derivative instruments such as a credit linked note,

be eligible for the double default approach.

(iii) Specific minimum requirements relating to the double default approach

A bank that obtained the prior written approval of the Registrar to adopt the IRB approach for the measurement of the bank's exposure to credit risk, which bank wishes to apply the double default approach envisaged in this paragraph (g), shall continuously comply with the requirements specified in this subparagraph (iii).

(A) The PD ratio, LGD ratio, internal rating, external rating or risk weight associated with the relevant exposure prior to the application of the double default approach shall not already factor in any aspect relating to the relevant credit protection obtained, that is, credit protection shall under no circumstances be double counted.

(B) The protection provider-

(i) shall be a financial entity or institution, which financial entity or institution may be-

(aa) a bank, but under no circumstances any public-sector entity or multilateral development bank that is treated in a manner similar to a bank in terms of these Regulations;

(bb) an investment company or institution;

(cc) an insurance or re-insurance company or entity the business of which includes the provision of credit protection on a regular basis;

(dd) any non-sovereign credit export agency, that is, the credit protection shall not in any manner benefit from any sovereign guarantee or counter guarantee;

(ii) shall be regulated in a manner similar to a bank, that is, the protection provider shall be subject to minimum required capital or solvency requirements, appropriate supervisory oversight and transparency, that is, minimum requirements relating to market discipline, or the protection provider shall have an external rating from an eligible external credit assessment institution of no less than investment grade;

(iii) at the time the credit protection for the relevant exposure was originally obtained, or for any period of time thereafter, had an internal rating with a PD ratio equivalent to or lower than the PD ratio associated with an external credit assessment or rating of A-; and

(iv) shall have an internal rating with a PD ratio equivalent to or lower than the PD ratio associated with an external investment grade rating or assessment.

(C) The credit protection obtained shall comply with the relevant minimum operational requirements envisaged in paragraphs (d) and (e) above.

(D) The reporting bank shall have the legal right and expect to receive payment from the relevant protection provider without first having to pursue the relevant obligor for payment, that is, the reporting bank shall take all reasonable steps in order to ensure that the protection provider is willing and able to promptly pay when a credit event occurs.

(E) Once a credit event occurs, the purchased credit protection shall make provision for immediate payment in respect of all credit losses incurred by the reporting bank in respect of the hedged portion of the relevant exposure.

(F) When the payout structure of the relevant credit protection obtained makes provision for physical settlement, the reporting bank shall have legal certainty regarding the deliverability of the relevant loan, instrument or contingent liability and when the bank intends to deliver an obligation other than the underlying exposure, the bank shall ensure that the deliverable obligation is sufficiently liquid in order for the bank to purchase the said obligation for delivery in accordance with the relevant requirements of the contract.

(G) The terms and conditions of the relevant credit protection shall be duly documented and legally confirmed in writing by the credit protection provider and the reporting bank.

(H) In the case of protection obtained against dilution risk, the seller of the purchased receivables shall not be a member of the same group as the protection provider.

(I) The reporting bank shall have in place a sufficiently robust process to monitor and control situations in which the performance of the protection provider and the protected obligor or exposure are dependent upon common factors, that is, the reporting bank shall have in place a sufficiently robust process to ensure that the double default approach is not applied to any exposure in respect of which excessive correlation exists between the creditworthiness of the protection provider and the obligor of the relevant underlying exposure.

For example, situations in which a protection provider guarantees the debt of a supplier of goods or services when the supplier derives a high proportion of its income or revenue from the protection provider shall not be eligible for the double default approach.

(iv) Matters specifically related to risk-weighted exposure and the required amount of capital and reserve funds

In respect of any hedged or protected exposure subject to the double default approach, the reporting bank shall calculate its risk-weighted exposure and related required amount of capital and reserve funds through the application of the formulae specified below, which formulae take into account the relevant risk components related to the said protected exposure.

$$RWA_{DD} = K_{DD} \times 12.5 \times EAD_g$$

where:

RWA_{DD} is the risk-weighted asset amount relating to the protected exposure subject to the double default approach

EAD_g is the relevant exposure at default amount, that is, the protected or hedged exposure amount

and

$$K_{DD} = K_0 \times (0.15+160 \times PD_g)$$

where:

K_{DD} is the capital requirement in respect of the hedged or protected exposure subject to the double default approach

PD_g is the PD ratio of the protection provider or guarantor, which PD ratio shall be subject to a minimum of 0,03 per cent

K_0 shall be calculated through the application of the relevant formula and in a manner similar to unprotected corporate exposure as envisaged in subregulation (11)(d)(ii), even when the underlying obligation or eligible exposure is a loan extended to a small business qualifying as a retail exposure, provided that in respect of the relevant hedged exposure the risk components specified in the formula below, which risk components relate to the LGD ratio and the maturity adjustment, shall be applied instead of the said risk components specified in the said formula in subregulation (11)(d)(ii).

$$K_o = LGD_g \cdot \left[N\left(\frac{G(PD_o) + \sqrt{\rho_{os}} \cdot G(0.999)}{\sqrt{1-\rho_{os}}} \right) - PD_o \right] \cdot \frac{1+(M-2.5)\cdot b}{1-1.5\cdot b}$$

where:

PD_0 is the PD ratio of the obligor, which PD ratio shall be subject to a minimum of 0,03 per cent

ρ_{os} is a correlation factor, which correlation factor shall be calculated in accordance with the relevant formula and requirements for the calculation of "R", specified in subregulation (11)(d)(ii), with PD being equal to PD_0

LGD_g is the LGD ratio associated with the protected or hedged exposure, that is, the LGD ratio relating to a direct exposure to the relevant protection provider or guarantor, provided that when evidence indicates that in the event both the guarantor and the obligor default during the life of the protected exposure the amount recovered depends upon the financial condition of the obligor, the bank shall apply the LGD ratio relating to an unprotected and direct exposure to the said obligor

b is the maturity adjustment coefficient, calculated according to the relevant formula specified in subregulation (11)(d)(ii), provided that PD shall be the lower of PD_o and PD_g

M is the effective maturity of the credit protection, which maturity shall in no case be less than one year

(13) Method 2: Calculation of credit-risk exposure in terms of the advanced IRB approach

(a) Unless specifically otherwise provided in this subregulation (13), a bank that obtained the prior written approval of the Registrar to adopt the advanced IRB approach for the measurement of the bank's credit risk exposure in respect of positions held in the bank's banking book-

(i) shall continuously comply with the relevant minimum requirements specified in subregulation (11)(b) above and paragraph (b) below, and such further conditions as may be specified in writing by the Registrar;

(ii) shall comply with the relevant disclosure requirements specified in regulation 43(2);

(iii) shall categorise its exposures in accordance with the relevant requirements specified in subregulation (11)(c);

(iv) shall, subject to the provisions of paragraphs (b)(v) and (d) below, calculate its risk-weighted exposures in accordance with the relevant requirements, formulae and risk components specified in subregulations (11)(d) to (11)(p) above;

(v) shall apply the IRB approach for the measurement of the bank's exposure relating to a securitisation scheme, that is, a bank shall not use the IRB approach for the measurement of the bank's exposure in respect of a securitisation scheme unless the bank obtained the prior written approval of the Registrar to apply the IRB approach for the measurement of the bank's exposure to underlying credit exposure, provided that the bank shall in respect of the said securitisation exposures comply with the relevant requirements specified in subregulation (11)(b)(xii);

(vi) shall deduct from the bank's capital and reserve funds such amounts as may be specified in subregulations (6)(j) and (11)(q) above.

(b) *Minimum requirements*

(i) Subject to such conditions as may be specified in writing by the Registrar, a bank that adopted the advanced IRB approach for the measurement of the bank's exposure to credit risk shall apply the said approach in respect of all material asset classes and business units.

(ii) For a minimum period of three years or such lesser minimum period as may be specified in writing by the Registrar, prior to a bank's implementation of the advanced IRB approach for the measurement of the bank's exposure to credit risk, the rating and risk estimation systems and processes of the bank should have-

(A) provided a meaningful assessment of borrower and transaction characteristics;

(B) provided a meaningful differentiation of risk;

(C) provided materially accurate and consistent quantitative estimates of risk, including PD ratios, LGD ratios and EAD amounts;

(D) produced internal ratings and default and loss estimates that formed an integral part of the bank's-

(i) credit approval process;

(ii) risk management process;

(iii) internal capital allocation process;

(iv) corporate governance process;

(E) been subjected to appropriate independent review;

(F) been broadly in compliance with the relevant minimum requirements specified in subregulation (11) above.

(iii) A facility rating of a bank that adopted the advanced IRB approach for the measurement of the bank's exposure to credit risk shall exclusively reflect the LGD ratio of the particular exposure provided that-

(A) a facility rating shall include all factors that may have an influence on the LGD ratio, such as the type of collateral, the product, the industry or the purpose;

(B) any borrower characteristics shall be included as LGD rating criteria only to the extent that such characteristics are predictive of LGD;

(C) the bank shall maintain a sufficient number of facility grades in order to avoid the grouping of facilities with widely varying LGD ratios into a single grade.

(iv) A bank that adopted the advanced IRB approach for the measurement of the bank's exposure to credit risk shall in the case of exposures to corporate institutions, sovereigns and banks collect and store data in respect of-

(A) the LGD ratios and EAD estimates associated with each relevant facility;

(B) the key data that was used to derive a particular risk estimate;

(C) the person or model responsible for a particular risk estimate;

(D) the estimated and realised LGD ratios and EAD amounts associated with each relevant defaulted facility;

(E) the credit risk mitigating effects of guarantees or credit-derivative instruments on LGD ratios, that is, the bank shall retain data in respect of the LGD ratio of the facility before and after the effect of a guarantee or credit-derivative instrument was taken into consideration;

(F) the components of loss or recovery for each defaulted exposure such as the amounts recovered, the source of recovery, for example, collateral, liquidation proceeds and guarantees, the time period required for recovery and administrative costs.

(v) Risk quantification

Unless specifically otherwise provided in this subregulation (13), a bank that adopted the advanced IRB approach for the measurement of the bank's exposure to credit risk-

(A) shall in the case of exposures to corporate institutions, sovereigns or banks estimate a PD ratio in respect of each internal borrower grade, which PD estimate shall comply with the relevant minimum requirements specified in subregulation (11)(b)(vi)(A) above;

(B) shall in the case of retail exposures estimate a PD ratio in respect of each relevant retail pool of exposures, which PD estimate shall comply with all the minimum requirements specified in subregulation (11)(b)(vi)(B) above;

(C) shall estimate an appropriate LGD ratio in respect of all relevant facilities and asset classes, which LGD ratio-

(i) shall incorporate all relevant and material data and information, including conditions relating to an economic downturn when such information is necessary to duly capture the relevant risk;

(ii) shall not be less than the long-run default-weighted average loss rate given default, based on the average economic loss of all observed defaults within the data source for a particular type of facility, which default-weighted average loss rate given default shall be calculated in accordance with the formula specified below:

$$LGD\ (\%) = \frac{1}{n}\sum_{i}^{n}\frac{\text{Economic loss}_i}{\text{Amount at default}_i}$$

For example, when a bank's pool of defaulted exposures consists of 75 defaults where the exposure at default is R10 000 and the bank suffered a complete loss, that is, an LGD ratio of 100%, and 25 defaults where the exposure at default was R1000 000 but the bank lost only R200 000, that is, an LGD ratio of 20%, the bank's default-weighted average LGD shall be calculated as:

$$\frac{(75 \times 100\%) + (25 \times 20\%)}{100} = 80\%$$

(iii) shall be based on the definition of default, specified in regulation 67;

(iv) may be based on averages of loss severities observed during periods of high credit losses, obtained from internal and/or external data, provided that the data shall be representative of long run experience;

(v) shall appropriately incorporate any potential correlation or dependence between the risk relating to the borrower and the collateral, collateral provider or protection provider;

(vi) shall incorporate the effect of a currency mismatch between the underlying obligation and any collateral obtained;

(vii) shall be based on historical recovery rates and empirical evidence and not, for example, solely on the estimated market value of collateral;

(viii) shall be based on a population of exposures that closely matches or is at least comparable to the bank's existing exposures and lending standards;

(ix) shall be based on economic and market conditions that are relevant and current;

(x) shall be based on a sufficient number of exposures and data periods that will ensure accurate and robust LGD estimates;

(xi) shall be based on an estimation technique that performs well in out-of-sample tests;

(xii) shall be reviewed on a regular basis but not less frequently than once a year, or when material new information is obtained;

(xiii) shall in the case of-

(aa) defaulted assets reflect the possibility that the bank may have to recognise additional, unexpected losses during the recovery period;

(bb) exposures to corporate institutions, sovereigns or banks be based on a minimum data observation period that covers a complete economic cycle but which observation period shall in no case be less than seven years in respect of at least one of the bank's data sources;

(cc) retail exposures be based on a minimum data observation period of no less than five years provided that the bank may with the prior written approval of the Registrar place more reliance on recent data when the said data better reflects loss rates in respect of the bank's retail exposures;

(D) shall estimate an appropriate EAD amount in respect of all relevant facilities and asset classes, which EAD amount-

(i) shall in the case of-

(aa) on-balance-sheet items be no less than the current drawn amount after the effect of set-off in terms of the provisions of regulation 13 has been taken into consideration;

(bb) off-balance-sheet items, excluding derivative instruments, be based on the bank's internal estimates for each facility type provided that the said internal estimates shall incorporate the possibility that further amounts may be drawn by the obligor up to and after the time of default;

(cc) derivative instruments be calculated in accordance with the relevant directives and requirements specified in subregulations (15) to (19) below;

(dd) exposures to corporate institutions, sovereigns or banks be based on a complete economic cycle provided that-

(i) the time period on which the EAD amount is based shall in no case be less than seven years;

(ii) the EAD estimates shall be based on a default-weighted average and not a time-weighted average amount;

(ee) retail exposures be based on a data observation period of no less than five years provided that the bank may with the prior written approval of the Registrar place more reliance on recent data when the said data better reflect likely draw-downs in respect of the bank's retail exposures;

(ii) shall be an estimate of the long-run default-weighted average EAD amounts in respect of similar facilities and borrowers over a sufficiently long period of time;

(iii) shall incorporate any correlation between the default frequency and the extent of EAD amounts;

(iv) shall incorporate the effects of downturns in the economy, that is, the risk drivers of the bank's internal model or the bank's internal data or external data shall incorporate the cyclical nature of each facility;

(v) shall be based on criteria that are plausible and intuitive;

(vi) shall appropriately take into consideration all relevant and material information;

(vii) shall be based on the definition of default, specified in regulation 67;

(viii) shall be based on a population of exposures that closely matches or is at least comparable to the bank's existing exposures and lending standards;

(ix) shall be based on economic and market conditions that are relevant and current;

(x) shall be based on a sufficient number of exposures and data periods that will ensure accurate and robust estimates of EAD amounts;

(xi) shall be based on an estimation technique that performs well in out-of-sample tests;

(xii) may take into account data from external sources, including pooled data, provided that the EAD estimates shall represent long-run experience;

(xiii) shall be based on historical experience and empirical evidence;

(xiv) shall be reviewed on a regular basis, but not less frequently than once a year, or when material new information is obtained;

(xv) shall be based on comprehensive policies, systems and procedures, which policies, systems and procedures shall be adequate-

(aa) to prevent further drawings in circumstances short of payment default, such as covenant violations or other technical default events;

(bb) on a daily basis, to monitor facility amounts and current outstanding amounts against committed lines;

(cc) to monitor any changes in outstanding amounts per borrower, and per risk grade;

(E) shall in the case of exposures to corporate institutions, sovereigns or banks calculate the effective maturity in respect of each relevant exposure, which effective maturity shall be calculated in accordance with and comply with the relevant minimum requirements specified in paragraph (d)(ii)(B) below.

(vi) Validation of internal estimates

As a minimum, a bank that adopted the advanced IRB approach for the measurement of the bank's exposure to credit risk-

(A) shall comply with the relevant requirements specified in subregulation (11)(b)(x) above and such further conditions as may be specified in writing by the Registrar;

(B) shall for each relevant risk grade regularly compare realised PD ratios, LGD ratios and EAD amounts with estimated PD ratios, LGD ratios and EAD amounts, and demonstrate to the satisfaction of the Registrar that the realised risk components are within the expected range of risk components for a particular grade;

(C) shall duly document the data and methods used to compare realised default rates, LGD ratios and EAD amounts with estimated PD ratios, LGD ratios and EAD amounts in respect of each relevant risk grade, including the periods that were covered and any changes in the data and methods that were used, which analysis and documentation shall be updated at appropriate intervals but not less frequently than once every year;

(D) shall have in place sufficiently robust internal standards to deal with situations where realised PD ratios, LGD ratios and EAD amounts substantially deviate from expected PD ratios, LGD ratios and EAD amounts provided that when the realised values continue to be higher than the expected values, the bank shall adjust its estimates of risk components upward in order to reflect the appropriate default and loss experiences of the bank.

(c) *Categorisation of exposures*

A bank that adopted the advanced IRB approach for the measurement of the bank's exposure to credit risk shall categorise its credit exposures in accordance with the relevant requirements specified in subregulation (11)(c) above.

(d) *Risk-weighted exposure*

(i) Unless specifically otherwise provided in this subregulation (13), in order to calculate its risk-weighted credit exposure, a bank that adopted the advanced IRB approach-

(A) shall in the case of-

(i) exposures to corporate institutions, sovereigns or banks calculate its own estimates of probability-of-default ("PD"), loss-given-default ("LGD"), exposure-at-default ("EAD") and effective maturity ("M") in respect of each relevant borrower grade or credit exposure provided that the bank shall comply with the relevant minimum requirements specified in respect of the said risk components in subregulations (11)(b) and (11)(d) above and in this subregulation (13);

(ii) retail exposures and purchased retail receivables calculate its own estimates of PD, LGD and EAD in respect of each relevant retail pool of exposures provided that the bank shall comply with the relevant minimum requirements specified in respect of the said risk components in subregulations (11)(b) and (11)(d) above and in this subregulation (13);

(iii) equity exposures apply the market-based approach or PD/LGD approach respectively specified in regulations 31(5)(b) and 31(5)(c), provided that the Registrar may direct the bank to use a particular approach;