SECTION C

PRUDENTIAL RETURNS

GENERAL GUIDANCE NOTES ON

INTERNAL RATING BASED (IRB) APPROACHES

SAMA

BANKING SUPERVISION DEPARTMENT

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General Guidance Notes: IRB-Approaches

These Prudential Returns are to be completed on a quarterly basis.

Section C: Calculation of Risk-weighted Amount for Credit Risk under IRB Approach

A. Risk-weighted Amount under IRB Approach

1. This section should be utilized in conjunction with the following SAMA's Guidance Documents on Basel II in completing the attached Prudential Return Q17.10 – Q17.20 concerning IRB Approach.
   SAMA's Detailed Guidance Document Consultative Draft # 2 of June 2006. (also, referred to as SAMA's Guidance Document of June 2006), and

   SAMA's Basel II Prudential Returns Consultative Draft of March, 2007 (referred to as SAMA's Guidance Document for March, 2007).

1.1 The IRB approach to credit risk is based on measures of unexpected loss (UL) and expected loss (EL). The risk-weight functions in this section produce capital requirements for the UL portion. EL is treated separately as outlined in subsection M of this GN-4.

2. A Bank should calculate the risk-weighted amount for the UL of its credit exposures (excluding securitization exposures) under the IRB approach as follows:

   i. A Bank should calculate the risk-weighted amount of each exposure (except equity exposures for which item (10) applies) of this document by multiplying the EAD of each such exposure by the relevant risk-weight;
   ii. In respect of an equity exposure which is subject to the internal models method, the Bank should calculate the risk-weighted amount by multiplying the potential loss of the exposure or capital requirement calculated under the internal models method by 12.5;
   iii. A Bank should aggregate the risk-weighted amount figures derived from items (i) and (ii) and then apply a scaling factor[1] (1.06) to the aggregate figure to arrive at the total risk-weighted amount for credit risk under the IRB approach.

3. A Bank may reduce the risk-weighted amount of an exposure by taking into account the effect of any recognized credit risk mitigation through adjusting the PD, LGD or EAD.

B. General Requirements for All IRB Classes

General Requirements

4. There are three key elements for calculation of risk-weighted amount for the UL portion under the IRB approach, including:
   i. Credit risk components – these are estimates of PD, LGD, EAD, EL and M made by a Bank, or supervisory estimates specified SAMA's Draft Guidance Rules of June 2006.

[1] The scaling factor also applies to securitization exposures under the IRB(S) approach.

ii. Risk-weight functions – these are the formulae by which credit risk components are transformed into risk-weighted amount and therefore capital requirements.
iii. Minimum requirements - the minimum standards (qualitative and quantitative) which a Bank should meet for the use of the IRB approach are described in SAMA's Draft of Guidance documents of June 2006.

5. A Bank should use the risk-weight functions provided in this section for the purpose of calculating the risk-weighted amount, unless otherwise specified. In applying such risk-weight functions, PD and LGD are measured as decimals, EAD is measured in SR and M is measured in years.

Corporate, Sovereign and Bank Exposures

6. Under the foundation IRB approach, a Bank should provide its own estimates of PD associated with each of its obligor grades, but should use supervisory estimates for other credit risk components (i.e. LGD[1], and M[2]).

7. Under the Advanced IRB approach, a Bank should provide its own estimates of PD, LGD and EAD and M.

8. In respect of Specialized Lending (SL) under supervisory slotting criteria approach, a Bank should apply the supervisory estimate of a risk-weight that is applicable to a supervisory rating grade in calculating the risk-weighted amount of such SL. Refer to section 2.2.3 to 2.2.10 of SAMA's Guidance documents of June 2006.

Retail Exposures

9. Under the retail IRB approach, a Bank should provide its own estimates of PD, LGD and EAD associated with each pool of retail exposures. There is no distinction between a foundation approach and an advanced approach for retail exposures.

Equity Exposures

10. There are two approaches to calculating the risk-weighted amount of equity exposures held in the banking book: (i) the market-based approach and (ii) the PD/LGD approach. Under the market-based approach, a Bank may use the simple risk-weight method, the internal models method or a combination of both.

Other Exposures

11. Under the specific risk-weight approach, a Bank should apply a specific risk-weight applicable to an exposure which falls within the IRB subclass of cash items (see paragraph 71) or the IRB subclass of other items (see paragraph 72) in calculating the risk-weighted amount of the exposure.

[1] LGD (refer to note 29 and 30 of GN4)

[2] For FIRB, M should be 2.5 year Subject to the SAMA's prior consent, a Bank having suitable systems for the calculation of M may be allowed to use explicit maturity adjustments under the foundation IRB approach.

C. Specific Requirements for Certain Exposure Portfolios

Purchased Receivables

12. Purchased receivables refers to corporate and retail IRB classes. For purchased corporate receivables, both the foundation IRB approach and the advanced IRB approach are available subject to the relevant minimum requirements being met. Like other retail exposures, there is no distinction between a foundation approach and an advanced approach for purchased retail receivables. For purchased receivables (whether corporate or retail), a Bank is required to calculate the risk-weighted amount for default risk and, if material, dilution risk of such purchased receivables (see item 73-78: Part H of this document)

Leasing Transactions

13. There is a distinct treatment for calculating the risk-weighted amount of exposures arising from leases with residual value risk. Leases without any residual value risk will be accorded the same treatment as exposures collateralized by the underlying leased assets. (see item 79-80: Part I of this document)

Repo-style Transactions

14. The calculation of the risk-weighted amount for repo-style transactions depends on the economic substance of the transaction and whether the transaction is booked in the banking book or the trading book. (See item 81-82 of this document)

D. Corporate, Sovereign and Bank Exposures

Risk-weight Function for Derivation of Risk-weighted Amount

15. The calculations of the risk-weighted amounts for corporate, sovereign and bank exposure is dependent on the estimates of PD, LGD, EAD and, M, of a given exposure.

    (a) Non-defaulted exposures

16. For corporate, sovereign and bank exposures that are not in default (but excluding those treated as hedged exposures under the double default framework), the risk weighted amount is calculated as follows:[1] [2]

[1] EXP denotes exponential and ln denotes the natural logarithm.

[2] 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.

Correlation (R)

= 0.12 × (1 - EXP (-50 × PD)) / (1 - EXP (-50)) + 0.24 × [1 - (1 - EXP (-50 × PD)) / (1 - EXP (-50))]

Maturity adjustment (b)

= (0.11852 - 0.05478 × ln (PD))^2

Capital charge factor19 **(K)**

= [LGD × N [(1 - R)^-0.5 × G (PD) + (R / (1 - R))^0.5 × G (0.999)] - PD x LGD] x (1 - 1.5 x b)^ -1 × (1 + (M - 2.5) × b)

Risk-weight (RW)[1] = K x 12.5

Risk-weighted amount = RW x EAD

(b) Defaulted exposures

17. A Bank should use the same risk-weight function set out in paragraph 16 to calculate the risk-weighted amount of its corporate, sovereign and bank exposures which are in default, except that the capital charge factor (K) for a defaulted corporate, sovereign or bank exposure should be equal to the greater of:

    i. zero
    ii. The figure resulting from the subtraction of the Bank's best estimate of the EL[2] expected loss from the LGD of the defaulted exposure.

Hedged exposures under double default framework

18. For any hedged exposure under the double default framework (see paragraphs 131 and 132), the risk-weighted amount is calculated as below:

Correlation (P_{os})

=0.12x(1-EXP (-50xPD_o))/(1-EXP(-50))+0.24x[1-(1-EXP(-50xPD_o))/(1-EXP(-50))]

Maturity adjustment (b_{os})

= (0.11852-0.054478x1n(PD_{os}))^2

[1] If this calculation results in a negative capital charge for any individual sovereign exposure, a Bank should apply a zero capital charge for that exposure.

[2] With the prior consent of SAMA, a Bank which uses the foundation IRB approach may use the supervisory estimate for the LGD as the EL for its corporate, sovereign and bank exposures which are in default: EL: PDxLGD; PD = 100% as default has occurred.

Capital charge factor (K_{DD})

$$=\left\{LGD_g \times \left[N\left(\frac{G(PD_o) + \sqrt{Pos} \times G(0.999)}{\sqrt{1-P_{os}}}\right) - PD_o\right] \times \frac{1+(M_{os}-2.5xb_{os}}{1-15xb_{os}}\right\} x\ (0.15+160xPD_g)$$

Risk-weight (RW_{DD}) = K_{DD} x 12.5
Risk-weighted amount = RW_{DD} x EAD_g

Where:

PD_o	=	PD of the underlying obligor without taking into account the effect of credit protection (see paragraph 25)
PD_g	=	PD of the credit protection provider of the hedged exposure (see paragraph 25)
PD_{os}	=	The lower of PD_o and PD_g
M_{os}	=	M of credit protection (see paragraph 48)
LGD_g	=	LGD of a comparable direct exposure to the credit protection provider paragraph 39 & and 40)
EAD_g	=	EAD of the hedged exposure

19. Defaulted exposures cannot be subject to the double default framework. In case the underlying obligor of a hedged exposure defaults, such exposure should be treated as a direct exposure to the credit protection provider and then risk-weighted accordingly. Conversely, if the credit protection provider of a hedged exposure defaults, such exposure should remain with the underlying obligor and should be risk-weighted as an unhedged exposure to the underlying obligor. In case both the underlying obligor and the credit protection provider of a hedged exposure default, such exposure should be treated as a defaulted exposure to either the underlying obligor or the credit protection provider, depending on which party defaulted last.

(d) SME corporates

20. A Bank using the IRB approach is permitted to separately distinguish its corporate exposures as SME corporates as defined in SAMA's guidance document of June 2006. For these SME corporate exposures, a firm-size adjustment (i.e. 0.04 x (1 - (S-30) / 450)) may be applied to the relevant risk-weight function for the calculation of the correlation value:

(i) Exposures to SME corporates that are not subject to the double default Framework

Correlation (R)

=0.12 x (1-EXP (-30 x PD)) / (1-EXP (-30)) + 0.24 x [1-(1-EXP (-30 x PD)) / (1 EXP (30-30))]-0.04 x (1-(S-30) / 450)

(ii) Exposures to SME corporates that are subject to the double default framework

Correlation (P_{os})

= 0.12 X (1-EXP (-50 x PD_o)) + 0.24 x [1-(1-EXP(-50 x PD_o)) / (1-EXP(-50))]-0.04 x (S-50) / 450)

(e) Specialized Lending (SL)

21. A Bank that meets the requirements for PD estimation under the IRB approach for its SL should use the foundation IRB approach (or the advanced IRB approach, where the Bank can also provide the estimates of other credit risk components) to calculate the risk-weighted amount for such SL, based on the relevant risk-weight functions set out in paragraphs 15 to 16.

22. In respect of SL under supervisory slotting criteria approach, a Bank should apply the UL risk-weight specified in the table below for the relevant supervisory rating grade to which a SL is assigned in calculating the risk-weighted amount of that SL.

	Strong	**Good**	**Satisfactory**	**Weak**	**Default**
Remaining Maturity of Less than 2.5 Years	50%	70%	115%	250%	0%
Remaining Maturity of Equal to or More than 2.5 years	70%	90%	115%	250%	0%

23. A Bank may assign a preferential risk-weight of 50% to "strong" exposures SAMA and 70% to "good" exposures, provided that the Bank demonstrates to the satisfaction of SAMA that the Bank's credit underwriting criteria and the ability of the obligor in respect of the SL to withstand other risk characteristics are substantially stronger than the corresponding criteria for the equivalent supervisory rating grade as described in paragraph 22.

Credit Risk Components

Probability of Default (PD)

24. For corporate and bank exposures, the PD of an exposure is the greater of the PD associated with the internal obligor grade to which that exposure is assigned, or 0.03%.

25. Under the double default framework, PDo and PDg (see paragraph 18) are the PD associated with the internal obligor grade of the underlying obligor and the credit protection provider, respectively, and both are also subject to the PD floor of 0.03%.

26. For sovereign exposures, the PD of an exposure is the PD associated with the internal obligor grade to which that exposure is assigned (i.e. without any PD floor).

26.1 For corporate bonds, other financial institutions, use of associated external rating is permitted provided it is from SAMA approving Agency which includes Moodys, S&P and Fitch IBCA.

27. For corporate, sovereign and bank exposures, the PD of an exposure assigned to a default grade is 100%.

Loss Given Default (LGD)

28. A Bank should provide an estimate of the LGD for each corporate, sovereign and bank exposure. There are two approaches for deriving this LGD estimate: the foundation IRB approach or the advanced IRB approach.

LGD under foundation IRB approach

(a) Treatment of exposures which are unsecured or secured by non-recognized collateral under foundation IRB approach

29. For corporate, sovereign and bank exposures, a senior exposure[1] that is unsecured or secured by a non-recognized collateral should be assigned a LGD of **60%**[2].

30. For corporate, sovereign and bank exposures, a subordinated exposure[3] should be assigned a LGD of 75%.

(b) **Recognized collateral** under foundation IRB approach

31. With reference to collateral recognized for senior exposures under the foundation IRB approach: Refer to SAMA's Guidance Document of March 2007.

Recognized financial collateral

These include all collaterals classified as eligible financial collaterals with the exception of equities and mutual funds. These collaterals related generally to all senior exposures under the IRB approach. However equities do get recognized as collateral only in this case of exposures relating to **margin** lending programs.

SAMA does not recognized any IRB collaterals i.e. Financial Receivable, Residential Real Estate (RPE), Commercial Real Estate (CRE) Physical Cards, etc.

[1] A senior exposure means an exposure to an obligor which is not a subordinated exposure.

[2] While the Basle Committee for Banking Supervision has recommended a Standard LGD of 45% under the FIRB Approaches, the Agency would like Saudi Banks to use an LGD ratio of 60% as an interim measure. This percentage maybe revised in the future as relevant additional information and data is collected by Saudi Banks and SIMAH's National Data Pooling Project.

[3] A subordinated exposure means an exposure to an obligor which is lower in ranking, or junior, to other claims against the obligor in terms of the priority of repayment or which will be repaid only after all the senior claims against the obligor have been repaid.

32. The methodology for recognition of recognized financial collateral closely follows the comprehensive approach under the STD approach. The effective LGD (LGD*) applicable to a senior exposure with recognized financial collateral is expressed as follows:

LGD* = LGD x (E* / E)

Where:

LGD	=	LGD of the senior exposure before recognition of recognized financial collateral (i.e. 60%)
E	=	EAD of the exposure
E*	=	Net credit exposure (being the EAD of the exposure after recognition of recognized financial collateral[2])

33. E* is calculated as follows:

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

For details refer to SAMA's documents entitled "SAMA Basle II Prudential Returns Consultative Draft # 2 of March, 2007" or section B of this document.

34. As in the STD approach, a 0% haircut is applied to repo-style transactions that are treated as collateralized loans to the counterparty if the criteria for the preferential treatment under the comprehensive approach as set out in SAMA's Guidance Document on Comprehensive Approach.

35. NOT APPLICABLE

36. NOT APPLICABLE

37. NOT APPLICABLE

<u>LGD under Advanced IRB Approach</u>

38. A bank using the advanced IRB approach is allowed to use its own internal estimates of LGD for corporate, sovereign and bank exposures. The LGD should be measured as a percentage of the EAD.

<u>LGD under Double Default Framework</u>

39. For the purposes of calculating the risk-weighted amount of hedged exposures under the double default framework, LGDg is the LGD of a comparable direct exposure to the credit protection provider (see paragraph 18). That means, LGDg will be the LGD of the exposure to the credit protection provider or an unhedged exposure to the underlying obligor, depending upon whether in the event both the credit protection provider and the underlying obligor default during the life of the hedged exposure, available evidence and the structure of the guarantee/credit derivative contract indicate that the amount recovered would depend on the financial condition of the credit protection provider or the underlying obligor as the case may be.

40. In estimating the LGDg, a Bank may recognize collateral provided exclusively against the exposure or the guarantee/credit derivative contract respectively. There should be no consideration of double recovery in the LGD estimate.

Exposure at Default (EAD)

41. The EAD of an exposure is measured without deduction of specific provisions and partial write-offs.

42. In relation to an on-balance sheet exposure, a Bank should use the current drawn amount of the exposure, as an estimate of the EAD of the exposure such that the EAD of the exposure is not less than the sum of:

    (i) The amount by which the Bank's core capital would be reduced if the exposure were fully written-off; and

    (ii) Any specific provisions and partial write-offs in respect of the exposure.

    Where the amount by which a Bank's estimate of EAD in respect of an exposure exceeds the sum of items (i) and (ii) of the exposure, this amount is termed a discount. The calculation of the risk-weighted amount should be independent of any discounts. In calculating the eligible provisions for the purpose of the EL-eligible provisions calculation as set out in Section M (P. 33), any discounts attributed to defaulted exposures should be included.

43. In relation to the calculation of EAD of off-balance sheet exposures, a Bank should refer to item section 84.

Effective Maturity (M)

44. (a) M under foundation IRB approach

    For a Bank using the foundation IRB approach for corporate, sovereign and bank exposures, M will be 2.5 years except for repo-style transactions where M will be 6 months[1].

    [1]With the prior consent of the SAMA, a Bank using the foundation IRB approach may calculate M for each exposure in accordance with paragraphs 45 to 47 if the Bank can demonstrate that it has adequate systems for doing so.

    (b) M under advanced IRB approach

45. A Bank using the advanced IRB approach for corporate, sovereign and bank exposures is required to calculate M for each exposure. Subject to paragraph 46, M is defined as the greater of one year or the remaining effective maturity, in years, of the exposure as defined below:

    i. For an exposure subject to a predetermined cash flow schedule, M is defined as:

    Effective Maturity (M) = $\sum_t t*CF_t \,/\, \sum_t CF_t$

    Where CF_t denotes the cash flows (principal, interest payments and fees) contractually payable by the borrower in period t

Where CFt denotes cash flows (including principal, interest payments and fees) contractually payable by the obligor in period t. Period t is expressed in years (that is, where a payment is due to be received in 18 months, t = 1.5).

ii. If it is not practicable for a Bank to calculate M of the contracted payments in accordance with item (i), the Bank should use a more prudent measure of M which is not less than the maximum remaining time, in years, that the obligor is permitted to fully discharge its contractual obligations (including principal payments, interest payments and fees) under the terms of the agreement governing the exposure. This usually corresponds to the nominal maturity of the exposure.

iii. Banks using any element of the advanced IRB approach are required to measure effective maturity for each facility. However, SAMA has exempted facilities to certain smaller Saudi domestic corporate borrowers from the explicit maturity adjustment if the reported sales (i.e. turnover) for the firm is less than SR 30 million. The company has to be a Saudi company based in KSA. If the exemption is applied, all exposures to qualifying smaller domestic firms will be assumed to have an average maturity of 2.5 years, as under the foundation IRB approach.

In all cases, M will be no greater than five years.

46. The one-year floor on M does not apply to the following exposures:

i. Fully or almost fully collateralized capital market-driven transactions (i.e. OTC derivative transactions and securities margin lending transactions) or repo-style transactions with an original maturity of less than one year, where the documentation for the transaction contains clauses requiring daily revaluation or re-margining and allowing for the prompt realization or set-off of the collateral in the event of default or failure to revalue or re-margin, as the case may be.

ii. Exposures with an original maturity of less than one year which are not part of a Bank's ongoing financing (i.e. there being no intent or legal obligation to roll over the exposure concerned in the future) of the obligor. These exposures include:

- short-term self-liquidating trade transactions (such as an import or export letter of credit, or any similar transaction, which can be accounted for at its actual remaining maturity);
- securities purchases or sales, cash settlement by wire transfer, foreign exchange settlement, or any other exposures arising from unsettled non DvP transactions, provided that such exposures do not continue for five business days or more after the settlement date.
- Any other short-term exposures that a Bank demonstrates to the satisfaction of the SAMA that the Bank has no intent or legal obligation to roll over such exposures and will not, in practice, roll over the exposures. M of these exposures is calculated as the greater of one day or that measured in accordance with the above formula.

(c) M under the double default framework

47. NOT APPLICABLE

48. For hedged exposures that are subject to the double default framework, Mos[1] of the exposure should be the greater of:

    i. one year
    ii. The M of the credit protection in respect of the hedged exposure as calculated in accordance with the above formula on item 45.

E. Retail Exposures

Risk-weight Function for Derivation of Risk-weighted Amount

49. There are three separate risk-weight functions for retail exposures. The risk-weights for retail exposures are based on separate assessments of PD and LGD as inputs to the risk-weight functions. The calculation of the risk-weighted amount for retail exposures does not require the input of M.

(a) Non-defaulted exposures

RM (Residential Mortgage)

50. For retail exposures which fall within the IRB subclass of RM to individuals that are not in default (whether secured or partially secured[2]), the risk-weighted amount is calculated as follows:

Correlation (R) = 0.15
Capital charge factor (K)
= LGD x N [(1-R)^-0.5 x G (PD) + (R/(1-R))^0.5 x G (0.999)]-PD x LGD
Risk-weight (RW) = K x 12.5
Risk-weighted amount = RW x EAD

QRRE (Qualifying Revolving Retail Exposure)

51. For retail exposures which fall within the IRB subclass of QRRE (see paragraph 26) that are not in default, the risk-weighted amount is calculated as below:

Correlation (R) = 0.04
Capital charge factor (K)
= LGD x N [(1-R) ^-0.5 x G (PD) + (R / (1-R)) ^ 0.5 x G (0.999)] – PD x LGD
Risk-weight (RW) = K x 12.5
Risk-weighted amount = RW x EAD

[1] Refer to months

[2] This means that the risk-weight also applies to the unsecured portion of such RMs

Small Business Exposures and Other Retail Exposures to Individuals

52. For retail exposures which fall within the IRB subclasses of small business enterprise[1] or other retail exposures to individuals that are not in default, the risk-weighted amount is calculated as below:

Correlation (R)[2]
= 0.03 x (1-EXP (-35 x PD)) / (1-EXP (-35)) + 0.16 x [1-(1-EXP (-35 x PD)) / (1 – EXP (-35))
Capital charge factor (K)
=LGD x N [(1-R)^ -0.5 x G (PD) + (R/(1-R))^ 0.5 x G (0.999)] – PD x LGD
Risk-weight (RW) = K x 12.5
Risk-weighted amount = RW x EAD

(b) Defaulted exposures

53. A Bank should use the same risk-weight function set out in paragraph 50, 51 or 52, as the case may be, to calculate the risk-weighted amount of a retail exposure which is in default, except that the capital charge factor (K) for a defaulted retail exposure should be equal to the greater of:
    i. Zero
    ii. The figure resulting from the subtraction of the Bank's best estimate of the EL from the LGD of the exposure.

Credit Risk Components

Probability of Default (PD) and Loss Given Default (LGD)

54. For each identified pool of retail exposures, a Bank using the retail IRB approach should provide an estimate of the PD and LGD associated with the pool. The PD for a retail exposure is the greater of the PD associated with the pool to which the retail exposure is assigned or 0.03%. The PD of a retail exposure assigned to a default pool is 100%.

55. Owing to the potential for a very long run cycle in property prices which even comparatively long runs of data may not adequately capture, the estimate of LGD of a retail exposure which falls within the IRB subclass of RM to individuals cannot be set below 10%[3] during the **transitional period** from 1 January 2010 to 31 December 2012.

Exposure at Default (EAD)

56. The EAD of an exposure is measured without deduction of specific provisions and partial write-offs.

[1] Where a Bank intends to apply a double default framework to small business enterprise, such exposures should be re-classified as corporate exposures because they should no longer be managed on a pooled or portfolio basis.

[2] Correlation (R) is allowed to vary with PD.

[3] The 10% LGD floor should not apply, however, to sub-segments that are subject to, or benefit from, recognized guarantees issued by sovereigns. Furthermore, the existence of the floor does not imply any waiver of the requirements of LGD estimation.

57. In relation to an on-balance sheet exposure, a Bank should use the current drawn amount of the exposure, after taking into account the credit risk mitigating effect of any recognized netting (see Part L of this section), as an estimate of the EAD of the exposure such that the EAD of the exposure is not less than the sum of:
    (i) The amount by which Bank's core capital would be reduced if the exposure were fully written-off.
    (ii) Any specific provisions and partial write-offs in respect of the exposure.

    Where the amount by which a Bank's estimate of EAD in respect of an exposure exceeds the sum of items (i) and (ii) of the exposure, this amount is termed a discount. The calculation of the risk-weighted amount should be independent of any discounts. In calculating the eligible provisions for the purpose of the EL-eligible provisions calculation as set out in Section N, any discounts attributed to defaulted exposures should be included.

58. In relation to the calculation of EAD of off-balance sheet exposures, a Bank should refer to Section L of this section.

F. Equity Exposures

Derivation of Risk-weighted Amount

59. A Bank is allowed to use either the market-based approach or the PD/LGD approach to calculate the risk-weighted amount of its equity exposures held in the banking book, subject to fulfilling the relevant requirements set out in the Rules. In addition, the Bank should demonstrate to the satisfaction of SAMA that the approach employed:
    (i) Is appropriate for the Bank's portfolios of equity exposures.
    (ii) Is applied consistently to those portfolios.
    (iii) Is not used for the purpose of regulatory capital arbitrage.

(a) Market-based approach

60. Under this approach, a Bank is permitted to calculate the risk-weighted amount of its equity exposures held in the banking book using one or both of the following two separate and distinct methods:

    (i) Simple risk-weight method

    A 300% risk-weight is to be applied to equity exposure in a publicly traded company (being an equity security traded on a recognized exchange)[1] and a 400% risk-weight is to be applied to all other equity exposures.

    Short positions in an equity exposure (including derivative instruments) held in the banking book are permitted to offset long positions in the same equity exposure, provided that these short positions have been explicitly designated as a hedge of the long positions in that equity exposure and that they have a remaining maturity of at least one year. Other short positions (including the net short position remains after the set-off) are to be treated as if they were long positions with the relevant risk-weight applied to the absolute value of each position.

[1] For the definition of recognized exchange refer to SAMA's guidance document concerning the market risk issued in January 2004.

In the context of maturity mismatched positions, the methodology is that for corporate exposures.
(Please refer to Paragraph 345 of International Convergence of Capital Measurement and Capital Standards – June 2006)

(ii) **Internal Models Basic Approach**

To be eligible for the internal models market-based approach a bank must demonstrate to its supervisor that it meets certain quantitative and qualitative minimum requirements at the outset and on an ongoing basis. A bank that fails to demonstrate continued compliance with the minimum requirements must develop a plan for rapid return to compliance, obtain its supervisor's approval of the plan, and implement that plan in a timely fashion. In the interim, banks would be expected to compute capital charges using a simple risk weight approach.

Capital charge risk and quantification

The following minimum quantitative standards apply for the purpose of calculating minimum capital charges under the internal models approach.

- The capital charge is equivalent to the potential loss on the institution's equity portfolio arising from an assumed instantaneous shock equivalent to the 99th percentile, one-tailed confidence interval of the difference between quarterly returns and an appropriate risk-free rate computed over a long-term sample period.
- The estimated losses should be robust to adverse market movements relevant to the long-term risk profile of the institution's specific holdings. The data used to represent return distributions should reflect the longest sample period for which data are available and meaningful in representing the risk profile of the bank's specific equity holdings. The data used should be sufficient to provide conservative, statistically reliable and robust loss estimates that are not based purely on subjective or judgmental considerations. Institutions must demonstrate to supervisors that the shock employed provides a conservative estimate of potential losses over a relevant long-term market or business cycle. Models estimated using data not reflecting realistic ranges of long-run experience, including a period of reasonably severe declines in equity market values relevant to a bank's holdings, are presumed to produce optimistic results unless there is credible evidence of appropriate adjustments built into the model. In the absence of built-in adjustments, the bank must combine empirical analysis of available data with adjustments based on a variety of factors in order to attain model outputs that achieve appropriate realism and conservatism. In constructing Value at Risk (VaR) models estimating potential quarterly losses, institutions may use quarterly data or convert shorter horizon period data to a quarterly equivalent using an analytically appropriate method supported by empirical evidence. Such adjustments must be applied through a well-developed and well-documented thought process and analysis. In general, adjustments must be applied conservatively and consistently over time. Furthermore, where only limited data are available, or where technical limitations are such that estimates from any single method will be of uncertain quality, banks must add appropriate margins of conservatism in order to avoid over-optimism.
- No particular type of VaR model (e.g. variance-covariance, historical simulation, or Monte Carlo) is prescribed. However, the model used must be able to capture adequately all of the material risks embodied in equity returns including both the general market risk and specific risk exposure of the institution's equity portfolio. Internal models must adequately explain historical price variation, capture both the magnitude and

changes in the composition of potential concentrations, and be robust to adverse market environments. The population of risk exposures represented in the data used for estimation must be closely matched to or at least comparable with those of the bank‘s equity exposures.

- Banks may also use modelling techniques such as historical scenario analysis to determine minimum capital requirements for banking book equity holdings. The use of such models is conditioned upon the institution demonstrating to its supervisor that the methodology and its output can be quantified in the form of the loss percentile specified under (a).
- Institutions must use an internal model that is appropriate for the risk profile and complexity of their equity portfolio. Institutions with material holdings with values that are highly non-linear in nature (e.g. equity derivatives, convertibles) must employ an internal model designed to capture appropriately the risks associated with such instruments.
- Subject to supervisory review, equity portfolio correlations can be integrated into a bank’s internal risk measures. The use of explicit correlations (e.g. utilisation of a variance/covariance VaR model) must be fully documented and supported using empirical analysis. The appropriateness of implicit correlation assumptions will be evaluated by supervisors in their review of model documentation and estimation techniques.
- Mapping of individual positions to proxies, market indices, and risk factors should be plausible, intuitive, and conceptually sound. Mapping techniques and processes should be fully documented, and demonstrated with both theoretical and empirical evidence to be appropriate for the specific holdings. Where professional judgement is combined with quantitative techniques in estimating a holding’s return volatility,the judgement must take into account the relevant and material information not considered by the other techniques utilised.
- Where factor models are used, either single or multi-factor models are acceptable depending upon the nature of an institution‘s holdings. Banks are expected to ensure that the factors are sufficient to capture the risks inherent in the equity portfolio. Risk factors should correspond to the appropriate equity market characteristics (for example, public, private, market capitalisation industry sectors and sub-sectors, operational characteristics) in which the bank holds significant positions. While banks will have discretion in choosing the factors, they must demonstrate through empirical analyses the appropriateness of those factors,including their ability to cover both general and specific risk.
- Estimates of the return volatility of equity investments must incorporate relevant and material available data, information, and methods. A bank may utilise independently reviewed internal data or data from external sources (including pooled data). The number of risk exposures in the sample, and the data period used for quantification must be sufficient to provide the bank with confidence in the accuracy and robustness of its estimates. Institutions should take appropriate measures to limit the potential of both sampling bias and survivorship bias in estimating return volatilities.
- Risk Management processes and controls

A rigorous and comprehensive stress-testing programme must be in place. Banks are expected to subject their internal model and estimation procedures, including volatility computations, to either hypothetical or historical scenarios that reflect worst-case losses given underlying positions in both public and private equities. At a minimum, stress tests should be employed to provide information about the effect of tail events beyond the level of confidence assumed in the internal models approach.

Banks' overall risk management practices used to manage their banking book equity investments are expected to be consistent with the evolving sound practice guidelines issued by the Committee and national supervisors. With regard to the development and use of internal models for capital purposes, institutions must have established policies, procedures, and controls to ensure the integrity of the model and modeling process used to derive regulatory capital standards.

These policies, procedures, and controls should include the following:

- Full integration of the internal model into the overall management information systems of the institution and in the management of the banking book equity portfolio. Internal models should be fully integrated into the institution's risk management infrastructure including use in: (i) establishing investment hurdle rates and evaluating alternative investments; (ii) measuring and assessing equity portfolio performance (including the risk-adjusted performance); and (iii) allocating economic capital to equity holdings and evaluating overall capital adequacy as required under Pillar 2. The institution should be able to demonstrate, through for example, investment committee minutes, that internal model output plays an essential role in the investment management process.
- Established management systems, procedures, and control functions for ensuring the periodic and independent review of all elements of the internal modeling process, including approval of model revisions, vetting of model inputs, and review of model results, such as direct verification of risk computations. Proxy and mapping techniques and other critical model components should receive special attention. These reviews should assess the accuracy, completeness, and appropriateness of model inputs and results and focus on both finding and limiting potential errors associated with known weaknesses and identifying unknown model weaknesses. Such reviews may be conducted as part of internal or external audit programmes, by an independent risk control unit, or by an external third party.
- Adequate systems and procedures for monitoring investment limits and the risk exposures of equity investments.
- The units responsible for the design and application of the model must be functionally independent from the units responsible for managing individual investments.
- Parties responsible for any aspect of the modeling process must be adequately qualified. Management must allocate sufficient skilled and competent resources to the modeling function.

Under this method, the Bank should calculate the risk-weighted amount of its equity exposures by multiplying the potential loss of its equity exposures as derived by using its internal models (e.g. VaR models) subject to the one-tailed 99% confidence interval of the difference between quarterly returns of the exposures and an appropriate risk-free rate computed over a long-term observation period (i.e. not less than three years) by 12.5.

The risk-weighted amount calculated under the internal models method should be no less than the risk-weighted amount calculated under the simple risk weight method using a 200% risk-weight for equity exposure in a publicly traded company and a 300% risk-weight for all other equity exposures. Such minimum risk-weighted amount should be calculated separately using the simple risk-weight method at individual exposure level rather than at portfolio level.

(Please refer to Paragraph 525, 527 and 528 of International Convergence of Capital Measurement and Capital Standards – June 2006)

61. A Bank may use more than one market-based approach for its different equity portfolios[1], provided that the Bank can demonstrate to the satisfaction of the SAMA that:

    i. This is justified having regard to the respective risk profiles of the portfolios.
    ii. The Bank uses different risk assessment methods for the portfolios in its internal risk management functions.

(b) PD/LGD approach

62. The minimum requirements and methodology for calculating the risk-weighted amount of equity exposures including equity of companies that are included in the retail asset class under the PD/LGD approach are the same as those for the foundation IRB approach for corporate exposures, except that:

    i. The EAD in respect of an equity exposure should be determined in accordance with paragraphs 68 to 70
    ii. If the Bank has an equity exposure to a corporate but does not have a debt exposure to that corporate such that the Bank does not have sufficient information on the corporate for the application of the prescribed default criteria[2] as set out in the Rules, the Bank should calculate the risk-weighted amount of the equity exposure such that:
        - If the EAD of the Bank's equity exposures to the corporate is not more than 15% of the Bank's total equity exposures, the Bank calculates the risk-weighted amount of the equity exposure by multiplying the EAD of the exposure by the product of the risk-weight as derived from using the risk-weight function set out in paragraph 16 given the PD set by Bank (where applicable, adjusted in accordance with paragraph 20 in respect of exposures to SME corporates) and a factor of 1.5.

        - If the EAD of the Bank's equity exposures to the corporate is material i.e. exceeds 15% of the Bank's total equity exposures, and the Bank is permitted to use the PD/LGD approach for regulatory purposes but the bank has not yet met the relevant standards, the Bank applies the simple risk-weight method set out in paragraph 60(i).

    iii. An LGD of 90%[3] is assumed for deriving the risk-weight of an equity exposure.
    iv. M is assumed to be five years.

63. Hedging for equity exposures under the PD/LGD approach is subject to an LGD of 90% in respect of the exposure to the seller of the hedge. For this purpose, equity exposures will be treated as having a five-year maturity.

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[1] For example, the bank may apply the simple risk-weight method to its non-listed equity exposures while the internal models method to its listed equity exposures

[2] In practice, if there are both an equity exposure and a debt exposure to the same counterparty, a default on the debt exposure would thus trigger a simultaneous default for regulatory purposes on the equity exposure.

[3] There is no advanced approach for equity exposures

64. Under the PD/LGD approach, when the sum of UL and EL in respect of an equity exposure results in lesser capital than would be required from application of one of the minimum risk-weights set out in paragraphs 65 and 66, the minimum risk weights should be used. In other words, the minimum risk-weight should be applied, if the risk-weight calculated according to paragraph 62 plus the EL in respect of an equity exposure (i.e. EL for non-defaulted exposures = PD x LGD while EL for defaulted exposures = a Bank best estimate of EL) multiplied by 12.5 is less than the minimum risk-weight applicable to the exposure.

65. A minimum risk-weight of 100% applies to the following types of equity exposures as long as the portfolio is managed in the manner outlined below:

    i. Publicly traded equity exposures held for long-term investment – equity exposures in publicly traded companies where the investment is part of a long term customer relationship, any capital gains are not expected to be realized in the short-term in accordance with the Bank's investment policy and there is no anticipation of above trend capital gains in the long-term. It is expected that in almost all cases, the Bank will have lending and/or general banking relationships with the portfolio company so that the estimated PD is readily available. Given their long-term nature, specification of an appropriate holding period for such investments merits careful consideration. In general, the Bank is expected to hold the equity over the long-term (at least five years).
    ii. Privately owned equity exposures held for long-term investment – equity exposures in privately owned companies where the returns on the exposures are based on regular and periodic cash flows not derived from capital gains and there is no expectation of future above trend capital gain, or realization of any existing gain in the short-term, in accordance with the Bank's investment policy.

66. For all other equity positions, including net short positions (see paragraph 60 (i), the minimum risk-weights are 200% for publicly traded equity exposures and 300% for all other equity exposures.

67. The maximum risk-weight for the PD/LGD approach for equity exposures is 1250%[1]. This maximum risk-weight can be applied if the risk-weight calculated in accordance with paragraph 62 plus the EL in respect of an equity exposure multiplied by 12.5 exceeds 1250%.

Credit Risk Components

Exposure at Default (EAD)

68. In general, the measure of EAD for an equity exposure on which the calculation of the risk-weighted amount is based is the value of the equity exposure presented in a Bank's balance sheet. Therefore, the EAD of equity exposures will be measured as follows:

    (i) Investments held at fair value with changes in value flowing directly through the profit and loss account: the fair value presented in the balance sheet.

[1] Alternatively, a Bank may deduct the entire amount of the equity exposure as EL amount from its core capital and supplementary capital.

(ii) Investments held at fair value with changes in value not flowing through profit and loss account but into reserves: the fair value presented in the balance sheet.

(iii) Investments held at cost: the cost presented in the balance sheet.

69. Holdings in a collective investment scheme which contains investments which would constitute both equity exposures and non-equity exposures can be either treated, in a consistent manner, as a single investment based on the majority of the scheme's investments or, where possible, as separate and distinct investments in the scheme's component investments based on a look-through approach.

70. Where only the investment mandate of the collective investment scheme is known, the scheme can still be treated as a single investment. For this purpose, it is assumed that the scheme first invests, to the maximum extent allowed under its mandate, in investments which would constitute exposures falling within the IRB class attracting the highest capital charge of all the investments permissible under the scheme's investment mandate, and then continues making investments which would constitute exposures falling within other IRB classes in descending order of the level of the capital charge required in respect of such exposures.

G. Other Exposures

71. Notes and Coins

- Cash has risk provided subject to 0%
- Cash items in course of collection 20%
- Fixed assets 100%

72. The risk-weighted amount of other items is calculated by multiplying the EAD (i.e. the principal amount) of each item by a uniform risk-weight of 100%, or a higher risk weight specified by the SAMA if the SAMA is of the view that a particular exposure item poses a higher risk to the Bank.

H. Purchased Receivables

Derivation of Risk-weighted Amount for Default Risk

73. Purchased receivables should be classified as retail or corporate exposures, according to the nature of the receivables. For receivables belonging unambiguously to one IRB subclass, the risk-weight for default risk is based on the risk-weight function applicable to that particular IRB subclass, as long as the Bank can meet the relevant requirements for the use of that particular risk-weight function. For example, if a Bank cannot comply with the criteria for QRRE, the Bank should use the risk-weight function for other retail exposures to individuals. Where a Bank purchases a hybrid pool of receivables containing a mixture of exposures, the Bank should, if it cannot separate the receivables into different IRB subclasses, apply the risk-weight function that will result in the highest risk-weighted amount of the exposures in the pool of purchased receivables.

(a) Purchased retail receivables

74. A Bank may use the "top-down" approach to its purchased retail receivables as for other retail exposures (i.e. estimation of credit risk components on a pooled basis), provided that it meets the relevant requirements for retail exposures as set out in the Rules set in SAMA's Guidance

Document of June 2006. The Bank may utilize external and internal reference data to estimate the PD and LGD in respect of its purchased retail receivables at the pool level (i.e. the Bank is not required to estimate PDs and LGDs or EL for individual retail receivables within the pool). The estimates for PD and LGD (or EL) should be calculated for the purchased retail receivables on a stand-alone basis, that is, without regard to any recourse to, or guarantees from, the seller or other parties.

(b) Purchased corporate receivables

75. A Bank which purchases corporate receivables should use the "bottom-up" approach to estimate the credit risk components for individual receivables for the calculation of the risk-weighted amount (i.e. consistent with the treatment of the Bank's corporate exposures). In other words, the Bank is not allowed to use the "top-down" approach to its purchased corporate receivables. The estimates for PD and LGD (or EL) should be calculated for each of the purchased corporate receivables on a stand-alone basis, that is, without regard to any recourse to, or guarantees from, the seller or other parties.

(c) Requirements specific to estimating PD and LGD (EL). For qualifying purchased receivables

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 default 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. In general, the risk bucketing process will reflect the seller's underwriting practices and the heterogeneity of its customers. In addition, methods and data for estimating PD, LGD, and EL must comply with the existing risk quantification standards for retail exposures. 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.

Minimum operational requirements
A bank purchasing receivables has to justify confidence that current and future advances can be repaid from the liquidation of (or collections against) the receivables pool. To qualify for the top-down treatment of default risk, the receivable pool and overall lending relationship should be closely monitored and controlled. Specifically, a bank will have to demonstrate the following:

Legal certainty

- The structure of the facility must ensure that under all foreseeable circumstances the bank has effective ownership and control of the cash remittances from the receivables, including incidences of seller or servicer distress and bankruptcy. When the obligor makes payments directly to a seller or servicer, the bank must verify regularly that payments are forwarded completely and within the contractually agreed terms. As well,

ownership over the receivables and cash receipts should be protected against bankruptcy stays or legal challenges that could materially delay the lender‘s ability to liquidate/assign the receivables or retain control over cash receipts.

Effectiveness of monitoring systems

The bank must be able to monitor both the quality of the receivables and the financial condition of the seller and servicer. In particular:

- The bank must (a) assess the correlation among the quality of the receivables and the financial condition of both the seller and servicer, and (b) have in place internal policies and procedures that provide adequate safeguards to protect against such contingencies, including the assignment of an internal risk rating for each seller and servicer.
- The bank must have clear and effective policies and procedures for determining seller and servicer eligibility. The bank or its agent must conduct periodic reviews of sellers and servicers in order 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. The findings of these reviews must be well documented.
- The bank must have the ability to assess the characteristics of the receivables pool, including (a) over-advances; (b) history of the seller’s arrears, bad debts, and bad debt allowances; (c) payment terms, and (d) potential contra accounts.
- The bank must have effective policies and procedures for monitoring on an aggregate basis single-obligor concentrations both within and across receivables pools.
- The bank must receive timely and sufficiently detailed reports of receivables ageings and dilutions to (a) ensure compliance with the bank’s eligibility criteria and advancing policies governing purchased receivables, and (b) provide an effective means with which to monitor and confirm the seller’s terms of sale (e.g. invoice date ageing) and dilution.

Effectiveness of work-out systems

An effective programme requires systems and procedures not only for detecting deterioration in the seller’s financial condition and deterioration in the quality of the receivables at an early stage, but also for addressing emerging problems pro-actively. In particular,

- The bank should have clear and effective policies, procedures, and information systems to monitor compliance with (a) all contractual terms of the facility (including covenants, advancing formulas, concentration limits, early amortisation triggers, etc.) as well as (b) the bank’s internal policies governing advance rates and receivables eligibility. The bank’s systems should track covenant violations and waivers as well as exceptions to established policies and procedures.
- To limit inappropriate draws, the bank should have effective policies and procedures for detecting, approving, monitoring, and correcting over-advances.
- The bank should have effective policies and procedures 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.

Effectiveness of systems for controlling collateral, credit availability, and cash

The bank must have clear and effective policies and procedures governing the control of receivables, credit, and cash. In particular,

- Written internal policies must specify all material elements of the receivables purchase programme, including the advancing rates, eligible collateral, necessary documentation, concentration limits, and how cash receipts are to be handled. These elements should take appropriate account of all relevant and material factors, including the seller's/servicer's financial condition, risk concentrations, and trends in the quality of the receivables and the seller's customer base.
- Internal systems must ensure that funds are advanced only against specified supporting collateral and documentation (such as servicer attestations, invoices, shipping documents, etc.).

Compliance with the bank's internal policies and procedures

Given the reliance on monitoring and control systems to limit credit risk, the bank should have an effective internal process for assessing compliance with all critical policies and procedures, including:

- Regular internal and/or external audits of all critical phases of the bank's receivables purchase programme.
- 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.

A bank's effective internal process for assessing compliance with all critical policies and procedures should also include evaluations of back office operations, with particular focus on qualifications, experience, staffing levels, and supporting systems
(Please refer to Paragraph 491-499 of International Convergence of Capital Measurement and Capital Standards – June 2006)

Derivation of Risk-weighted Amount for Dilution Risk

76. Dilution refers to the possibility that the amount of a receivable is reduced through cash or non-cash credits to the receivable's obligor[1]. The following treatment of dilution risk will be applied regardless of whether the purchased receivables are corporate or retail exposures.

77. Unless a Bank can demonstrate to the satisfaction of the SAMA that the dilution risk it faces is immaterial, the Bank should calculate the risk-weighted amount for dilution risk in respect of both purchased corporate and retail receivables as follows:

    i. At the level of either the pool as a whole (the "top-down" approach) or the individual receivables making up the pool (the "bottom-up" approach), the

[1]Examples include offsets or allowances arising from returns of goods sold, disputes regarding product quality, possible debts of the borrower to a receivable's obligor, and any payment or promotional discounts offered bythe borrower (e.g. a credit for cash payments within 30 days).

purchasing Bank has to estimate the one-year EL for dilution risk (expressed as a percentage of the EAD of the purchased receivables).

ii. As with the treatment for default risk, the estimate of dilution risk should be computed on a stand-alone basis, that is, without regard to any recourse to, or guarantees from, the seller or other parties.

78. For the purpose of calculating the risk-weighted amount for dilution risk, the risk weight function for corporate exposures set out in paragraph 16 (and where applicable, adjusted in accordance with paragraph 20 in respect of SME corporates) should be used as follows:

(i) PD should be set equal to the Bank's estimate of EL for dilution risk;

(ii) LGD should be set at 100%; and

(iii) M is determined in accordance with:

- In the case of purchased corporate receivables, paragraph 44 if the Bank uses the foundation IRB approach, or paragraphs 45 to 47 if the Bank uses the advanced IRB approach.

- In the case of purchased retail receivables, paragraphs 45 to 47.

If a Bank can demonstrate to the satisfaction of SAMA that the Bank's dilution risk in respect of its purchased receivables is monitored and managed by the Bank with a view to the risk being resolved within one year after the purchase, the Bank may set M at one year.

I. Leasing Transactions

Leases without Residual Value Risk

79. Exposures arising from leasing arrangements, other than those exposing the Bank to residual value risk (see paragraph 80), should be treated as exposures secured by the leased assets. A Bank may recognize the credit risk mitigating effect of the leased assets as recognized collateral if the relevant requirements set out in the Rules relating to collaterals are met.

Leases with Residual Value Risk

80. Exposures arising from leasing arrangements that expose the Bank to residual value risk should be treated as follows:

i. Risk-weighted amount for default risk – a Bank should calculate the risk-weighted amount for default risk in respect of the exposure by multiplying the discounted lease payment stream (i.e. EAD) by a risk-weight derived by using the risk weight function applicable to the IRB subclass within which an exposure to the lessee falls (the PD and LGD as those which the Bank assigns to the exposure).

ii. Risk-weighted amount for residual value risk – a Bank should calculate the risk weighted amount for residual value risk in respect of the exposure by multiplying the residual value of the leased asset by a risk-weight of 100%.

J. Repo-style Transactions

81. A Bank should calculate the risk-weighted amount of its repo-style transactions booked in its banking book and reverse repos of securities and securities borrowing against cash collateral that are booked in its trading book.

82. Other than those covered by a valid bilateral netting agreement (see paragraphs 155 to 160), the Bank should adopt the "economic substance" approach for the calculation of the risk-weighted amount for repo-style transactions and report such transactions as on-balance sheet exposures as follows:

    i. Repos of securities (for the banking book only): a Bank agrees to sell securities to a third party for a sum of money with a commitment to repurchase the securities at an agreed price on an agreed future date from the third party. Under these transactions, the Bank should regard the underlying securities as its own assets and risk-weight such securities by applying an appropriate risk-weight function or method according to the nature of the securities (i.e. debt or equity) and the IRB class/subclass to which the issuer of the securities belongs.
    ii. Securities lending (for the banking book only): a Bank lends securities to a third party and receives a sum of money or other securities from the third party in exchange as collateral. Under these transactions, the Bank should regard the underlying securities as its own assets and risk-weight such securities by applying an appropriate risk-weight function or method according to the nature of the securities (i.e. debt or equity) and the IRB class/subclass to which the issuer of the securities belongs.
    iii. Reverse repos of securities (for both the banking book and the trading book): an Bank agrees to acquire securities from a third party for a sum of money with a commitment to resell the securities at an agreed price on an agreed future date to the third party. These transactions should be regarded as a collateralized loan to a counterparty and risk-weighted according to the IRB class/subclass to which that counterparty belongs.
    iv. Securities borrowing: a Bank borrows securities from a third party and provides a sum of money or other securities to the third party in exchange as collateral. The calculation of the risk-weighted amount for these transactions depends on:

        - Where the collateral provided is cash (for both the banking book and the trading book), the transaction should be treated as a collateralized loan to a counterparty[1] and risk-weighted according to the IRB class/subclass to which that counterparty belongs.

        - Where the collateral provided is securities (for the banking book only), the Bank should regard the collateral as its own assets and risk-weight such securities by applying an appropriate risk-weight function or method according to the nature of the securities (i.e. debt or equity) and the IRB class/subclass to which the issuer of the securities belongs.

Calculation of Risk-weighted Amount of Off-balance Sheet Exposures

[1]For securities lending or borrowing where the contractual agreement is made between the securities borrower/lender and the custodian (e.g. Clearstream Banking or Euroclear Bank) and the securities borrower/lender has no knowledge as from/to whom the security is borrowed/lent, the custodian becomes the "counterparty" of the stock borrower/lender.

Classification of Off-balance Sheet Exposures

83. A Bank is required to categorize its off-balance sheet exposures into one of the following three types:
    i. Off-balance sheet exposures (other than OTC derivative transactions and credit derivative contracts) in the banking book.
    ii. OTC derivative transactions
    iii. Credit derivative contracts in the trading book.

Derivation of Risk-weighted Amount of Off-balance Sheet Exposures

84. For the calculation of risk-weighted amount of off-balance sheet exposures, a Bank should:

    i. Convert an off-balance sheet exposure into credit equivalent amount (i.e. EAD) by applying an applicable credit conversion factor (CCF) to:

        - The principal amount of the off-balance sheet exposure (other than OTC derivative transactions and credit derivative contracts) in the banking book.
        - The principal amount of the OTC derivative transaction, plus any current exposure amount in the trading book.
        - The principal amount of the credit derivative contract in the trading book, plus any current exposure amount.

    ii. Multiply the credit equivalent amount of the off-balance sheet exposure by an applicable risk-weight.

Off-balance Sheet Exposures (Other than OTC Derivative Transactions and Credit Derivative Contracts)

<u>(a) CCFs and EAD</u>

85. A Bank should classify each of its off-balance sheet exposures (other than OTC derivative transactions and credit derivative contracts) in the banking book as one of the following items:

No.	Off-balance sheet exposures (other than OTC derivative transactions and credit derivative contracts) in the banking book	CCF		
		Corporate / Sovereign / Bank exposures		Retail exposures
		FIRB approach	AIRB approach	Retail IRB approach
1.	*Direct credit substitutes*	100%	100%	Own Estimate
No.	Off-balance sheet exposures (other than OTC derivative transactions and credit derivative contracts) in the banking book	CCF		
		Corporate / Sovereign / Bank Exposures		Retail exposures
		FIRB approach	AIRB approach	Retail IRB approach
2.	*Transaction-relate*	50%	Own estimate	Own estimate

3.	Trade-related contingencies	20%	Own estimate	Own estimate
4.	*Asset sales with recourse*	100%	100%	Own estimate
5.	*Forward asset purchases*	100%	100%	Own estimate
6.	Partly paid-up securities (being securities the unpaid portion of which a Bank may be called upon by the issuer to pay at a pre- determined or unspecified future date)	100%	100%	Own estimate
7.	*Forward deposits placed*[1]	100%	100%	Own estimate
8.	Note issuance and revolving Underwriting facilities	75%	Own estimate	Own estimate
9.	Commitments that are unconditionally cancelable without prior notice (i.e. commitments which do not fall within any of items 1 to 8 and may be cancelled at any time unconditionally by a Bank or which provide for automatic cancellation due to a deterioration in the creditworthiness of the person to whom the commitment has been made[2]	0%	Own estimate	Own Estimate

10.	Other commitments			
	(a) subject to paragraph (b) commitments which do not fall within item 9. (b) The drawdown of which will give rise to an off-balance sheet exposure falling within any items 1 to 8 or item 11.	75% The lower of 75% or the CCF applicable to the off-balance sheet exposure arising from the commitment concerned	Own Estimate Own estimate	Own estimate Own Estimate
11.	Others *This item includes any off balance sheet exposure not classified as the above items.*			

86. A Bank using the advanced IRB approach for corporate, sovereign and bank exposures or the retail IRB approach for retail exposures is allowed to provide its own estimates of CCFs for off balance sheet exposures as listed out in paragraph 85.

[1]Where a Bank has contracted to receive a deposit (i.e. forward deposits taken), failure to deliver by the counterparty may result in an unanticipated change in the Bank's interest rate exposures and involve a replacement cost. Such exposure should thus be accorded the same treatment as interest rate contracts.

[2]Included in this item are those facilities that are unconditionally cancelable without prior notice by the Bank other than for "force majeure" reasons, or that effectively provide for automatic cancellation due to deterioration in a borrower's creditworthiness. This is also includes any revolving or undated/open cancelled commitments, e.g. overdrafts or unused credit card lines, provided that these commitments can be unconditionally cancelled at any time and subject to credit review at least annually.

87. For corporate, sovereign and bank exposures, the principal amount to which the CCF is applied is the lower of (i) the amount of the unused committed credit line or (ii) the amount that reflects any possible constraining availability of the facility (e.g. the existence of a ceiling on the potential lending amount subject to the borrower's reported cash flow). If the facility is constrained in this manner, the Bank should have sufficient monitoring and management procedures to support this treatment.

88. For retail exposures with an uncertain future drawdown (e.g. credit cards), a Bank should take into account the drawdown and repayment history and expectation of additional drawings by the obligors prior to default in its overall calibration of loss estimates. In particular, where a Bank does not reflect CCFs for undrawn lines in its EAD estimates, it should reflect in its LGD estimates the likelihood of additional drawings prior to default. Conversely, if a Bank does not incorporate the possibility of additional drawings in its LGD estimates, it should do so in its EAD estimates.

89. When only the drawn balances of retail facilities have been securitized, a Bank should ensure that it continues to hold required capital against its share (i.e. seller's interest) of undrawn balances related to the securitization exposures under the IRB approach. For determining the EAD associated with the seller's interest in the undrawn lines, the undrawn balances of securitization exposures will be allocated between the seller's and investors' interests on a pro rata basis, based on the proportion of the seller's and investors' shares of the securitized drawn balances.

(b) Calculation of risk-weighted amount

90. In calculating the risk-weighted amount of off-balance sheet exposures (other than OTC derivative transactions and credit derivative contracts) in the banking book, the applicable risk-weight to an exposure should be derived from the risk-weight function for the IRB class/subclass within which the exposure falls.

OTC Derivative Transactions and Credit Derivative Contracts (Trading Book)

(a) CCFs for OTC derivative transactions

91. A Bank should classify its OTC derivative transactions into one of the following items:

No.	OTC derivative transactions	CCF		
		Residual Maturity: 1 year or less	**Residual Maturity: Over 1 year To 5 years**	**Residual Maturity: Over 5 Years**
1.	**Exchange rate contracts[1]**	1.0%	5.0%	7.5%
2.	**Interest rate contracts**	0.0%	0.5%	1.5%
3.	**Equity contracts**	6.0%	8.0%	10.0%
4.	**Precious metal contracts**	7.0%	7.0%	8.0%
5.	**Debt security contracts or Other commodity contracts**	10.0%	12.0%	15.0%

92. For contracts with multiple exchanges of principal, the CCFs to be used are to be multiplied by the number of remaining payments in the contract.

93. For contracts 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 dates, the residual maturity should be set equal to the time until the next reset date. In the case of interest rate contracts that meet these criteria and the remaining time to final maturity of the contracts is more than one year, the CCF is subject to a floor of 0.5%.

94. Forward contracts, swap contracts, purchased option contracts and similar derivative contracts other than those contracts the value of which is derived from the value of exchange rate, gold, interest rate, equity, precious metal, or credit derivative contracts in the trading book, should be applied the CCFs applicable to “other commodities contracts”.

<u>(b) CCFs for credit derivative contracts in the trading book</u>

95. A Bank should classify its credit derivative contracts that are booked in the trading book into one of the following items according to the role of the Bank in the contract (i.e. protection buyer or protection seller) and the credit quality of the reference obligation:

[1] The following contracts may be excluded from the calculation of risk-weighted amount:

(i) exchange rate contracts (except those based on gold) with an original maturity of 14 calendar days or less – when such contracts are covered by a valid bilateral netting agreement, the Bank may net the profit or loss on such contracts against those on other contracts covered by the same netting agreement in arriving at the net exposure for capital adequacy purposes. The inclusion or exclusion of such contracts for netting purposes should be done on a consistent basis.

(ii) forward exchange rate contracts arising from swap deposit arrangements – under such contracts, the money deposited by the customer remains under the control of the Bank at all times during the transaction, and the Bank will be in a position to ensure that the customer does not default on the settlement of the forward contract.

No.	Credit derivative contracts in the Trading book	CCF	
		Protection buyer	**Protection Seller**
1.	**Total return swap**		
a.	Qualifying reference obligation	5%	5%
b.	Non-qualifying reference obligation	10%	10%
2.	**Credit default Swap**		
a.	Qualifying reference obligation	5%	5%
b.	Non-qualifying reference obligation	10%	10%

The definition of "qualifying" is the same as for the "qualifying" class for the treatment of specific risk under the Standardized approach for market risk as described in SAMA's completion instructions of Market Risk.

96. Where the credit derivative contract is a first-to-default credit derivative contract linked to a basket of reference obligations, the CCF of non-qualifying reference obligations will be used if there is at least one non-qualifying reference obligation in the basket of reference obligations; otherwise, the CCF of qualifying reference obligations should be applied. For second-to-default credit derivative contract, the CCF of non-qualifying reference obligations will be used if there are at least two nonqualifying reference obligations in the basket; otherwise, the CCF of qualifying reference obligations should be applied. The same principle applies to other subsequent-to-default credit derivative contracts.

(c) Calculation of risk-weighted amount

97. As under the standardized approach, a Bank using the IRB approach should calculate the EAD of its OTC derivative transactions and credit derivative contracts in the trading book in accordance with the current exposure method under which the Bank is required to calculate the credit equivalent amount of each OTC derivative transaction and credit derivative contract in the trading book which is the sum of:

    (i) current exposure which is the replacement cost (obtained by "marking to market") of each derivative contract that has a positive value (where a contract has a negative value, its current exposure should be taken as zero).

    (ii) potential exposure (i.e. the add-on) which is derived by multiplying the principal amount of the contract by the applicable CCF.

98. The calculation of the potential exposure for single-currency floating / floating interest rate swap contracts is not necessary. The current exposures of these swap contracts should be taken as their credit equivalent amount.

99. For all derivative contracts, the calculation of the potential exposure should be based on the effective notional amount which reflects the actual risk inherent in the contract. For example, where the contract provides for the multiplication of cash flows as in leveraged derivative contracts, the notional amount should be adjusted to take into account this leveraged effect.

100. In calculating the risk-weighted amount of OTC derivative transactions and credit derivative contracts in the trading book, the EAD of an exposure should be the credit equivalent amount after adjusting for the risk mitigating effects of any recognized netting (see paragraphs 112 to 114) and the applicable risk-weight to the exposure should be derived from the risk-weight function for the IRB class/subclass within which the counterparty of the exposure falls.

101. For credit-linked notes, where the Bank issues such note to cover the credit risk of an underlying exposure, the maximum amount of protection is the amount of the funds received from issuing that note. The protected amount should be treated as an exposure collateralized by cash deposits while the remaining unprotected amount, if any, should be treated as an exposure to the issuer of the underlying assets.

102. Where the Bank holds a credit –linked note, it does not offload credit risk but acquires credit exposure on two fronts, to the reference entity of the note and also to the note issuer. This on-balance sheet exposure should be risk-weighted by the higher of the risk-weight of the reference entity or the risk-weight of the note issuer.

L. Credit Risk Mitigation

General

103. Under the IRB approach, a Bank may take into account the effect of recognized credit risk mitigation in its calculation of risk-weighted amount of exposures, including:

(i) Recognized collateral

(ii) Recognized guarantees and recognized credit derivative contracts.

104. The risk-weighted amount of a Bank's exposure in respect of which recognized credit risk mitigation has been taken into account shall not be higher than that of an identical exposure in respect of which recognized credit risk mitigation has not been so taken into account.

Capital Treatment of Recognized Collateral

105. Under the IRB approach, collateral is recognized through the determination of LGD (see paragraphs 28 to 38 for corporate, sovereign and bank exposures and paragraphs 54 and 55 for retail exposures)

106 to 120 – Items (to be ignored) for the present as netting is not permitted.

Capital Treatment of Recognized Netting

<u>(a) General</u>

106. Where a Bank is entitled pursuant to a valid bilateral netting agreement to net amounts owed by the Bank to a counterparty against amounts owed by the counterparty to the Bank, the Bank may take into account the credit risk mitigating effect of the recognized netting in calculating the EAD of its exposure to the counterparty.

(b) EAD measurement for on-balance sheet netting

107. In respect of on-balance sheet exposures which fall within the IRB class of corporate, sovereign, bank, retail or other exposures, a Bank may net the debit balances from the credit balances in the accounts of the same counterparty in accordance with the formula set out in paragraph 148 and report the net credit exposure amount as on balance sheet exposures before recognized guarantees/credit derivative contracts.

108. Below is the formula for calculating the net credit exposure with a counterparty for on-balance sheet exposures, adjusted for the credit risk mitigating effect of a valid bilateral netting agreement:

Net credit exposure = max [0, exposures - liabilities x (1 - Hfx)]

Guidance note on Basel II Prudential Returns Draft # 2 of March, 2006.

109. Hfx is the haircut to be applied in the case of a currency mismatch between exposures and liabilities, which is 8% assuming a **minimum holding period** of 10 business days, daily remargining and daily marking-to-market. It should be adjusted in accordance with the provisions set out in SAMA based on the frequency of remargining.

110. Treatments for maturity mismatch in respect of on-balance sheet netting are set out in paragraphs 142 to 144.

111. In respect of sovereign exposures, the market makers of Notes and bills which have short positions in these instruments may report their net holdings, provided that the short positions are covered by the Sale and Repurchase Agreements with the SAMA. The following steps should be taken in determining the amount to be reported:

i. The long and short positions of instruments with a residual maturity of under one year may be offset with each other.
ii. The long and short positions of instruments with a residual maturity of one year and over may be offset with each other.
iii. If the net positions of both items (i) and (ii) above are long, the positions should be reported.
iv. If the net position in item (i) is long and the net position in item (ii) is short, or the other way round, the positions can be netted with each other on a dollar for dollar basis. The resultant net long position, if any, should be reported.

(c) EAD measurement for netting of OTC derivative transactions and credit derivative contracts in the trading book

112. A Bank is allowed to net exposures arising from OTC derivative transactions and credit derivative contracts in the trading book with the same counterparty, provided that such exposures are subject to a valid bilateral netting agreement. The netting agreement may cover only a single type or more than one type of contracts or transactions.

113. A Bank is required to calculate an aggregate credit equivalent amount for OTC derivative transactions and credit derivative contracts in the trading book subject to a valid bilateral netting arrangement and report it as the credit equivalent amount before recognized guarantees/credit derivative contracts. Under the current exposure method, the aggregate credit equivalent amount of OTC derivative transactions and credit derivative contracts in the trading book subject to a valid bilateral netting agreement should be the sum of:

i. Current exposure which is the net amount of the sum of the positive and negative mark-to-market values of the individual contracts or transactions covered by a valid bilateral netting agreement, if positive.

ii. Potential exposure (the net add-on or ANet) which is derived by adding 40% of the sum of the products derived by multiplying the principal amount of each of those contracts or transactions by the CCFs and 60% of the Net/Gross Ratio (NGR) multiplied by the sum of the products derived by multiplying the principal amount of each of those contracts or transactions by the CCFs. This is expressed through the following formula:

ANet = 0.4 x AGross + 0.6 x NGR x A Gross

where:

A_{Gross} = the sum of the individual add-on amounts (derived by multiplying the principal amount by the CCF) of all contracts or transactions covered by the valid bilateral netting agreement with the same counterparty

NGR = the ratio of net replacement cost to gross replacement cost for contracts covered by the valid bilateral netting agreement

114. The NGR in the above formula can be calculated on a counterparty by counterparty or on an aggregate basis for all contracts or transactions covered by a valid bilateral netting agreement. However, the basis chosen by a Bank should be used consistently.

<u>(d) EAD measurement for netting of repo-style transactions</u>

115. Where repo-style transactions are subject to a valid bilateral netting agreement, a Bank may choose not to take into account the netting effects in calculating the risk weighted amount for such transactions. In taking into account the credit risk mitigating effects of recognized netting for repo-style transactions, the Bank should calculate the net credit exposure (E#) using the formula below, and equate E# as the credit equivalent amount before recognized guarantees/credit derivative contracts.

where:

$E^{\#}$ = Net credit exposure

E = Current market value of money and securities sold, transferred, loaned or paid by the Bank

C	=	Current market value of money and securities received by the Bank
E_s	=	Absolute value of the net position in the same securities
H_s	=	Haircut applicable to the absolute value of the net position in the same securities (i.e. E_s) pursuant to the standard supervisory haircuts for the comprehensive approach to the treatment of recognized collateral subject to adjustment as set out in section 92 of the Rules
E_{fx}	=	Absolute value of the net position in a currency different from the settlement currency
H_{fx}	=	Haircut applicable in consequence of a currency mismatch, if any, between the currency in which a net position is denominated and the settlement currency pursuant to the standard supervisory haircuts for currency mismatch set out in Schedule 7 of the Rules subject to adjustment as set out in section 92 of the Rules

116. The Bank should compare the aggregate market value of money and securities sold, transferred, loaned or paid with the aggregate market value of money and securities received, taking into account haircuts in the formula specified in paragraph 115. Where the value calculated in accordance with the formula is greater than zero, the Bank has a net credit exposure to the counterparty for which capital requirement should be provided.

117. For appropriate values of haircuts to be applied, the Bank should refer to SAMA's Basel II Prudential Returns Draft # 2 of March, 2006 which set out the standard supervisory haircuts and the circumstances requiring haircut adjustments under the comprehensive approach to treatment of collateral under the STD approach. As under the STD approach, a haircut of 0% may be applied for repo-style transactions where the criteria specified in SAMA's instruction are satisfied.

118. In general, repo-style transactions in the banking book and the trading book should be netted separately. Netting across positions in different books with the same counterparty will only be allowed if:

    (i) All transactions are marked-to-market daily
    (ii) The collateral used in the transactions is recognized collateral for transactions booked in the banking book.

119. Where the Bank has been approved for using internal models to measure market risk for capital adequacy purposes, it may, subject to the prior consent of SAMA, use a VaR approach as an alternative to the use of standard supervisory haircuts, to reflect the price volatility of the exposure and collateral for repo-style transactions covered by valid bilateral netting agreements on a counterparty-by-counterparty basis. The criteria for using the VaR approach and the related capital treatments are set out in SAMA's Basel II Prudential Returns Draft #2 of March 2006.

120. For corporate, sovereign and bank exposures under the foundation IRB approach, the impact of collateral on these repo-style transactions may not be reflected through an adjustment to LGD. Under the advanced IRB approach, own LGD estimates would be permitted for the unsecured net exposure amount (E#). The risk-weight of the net exposure amount will be determined using the risk-weight function applicable for that particular IRB class/subclass.

Capital Treatment of Recognized Guarantees and Recognized Credit Derivative Contracts

121. Under the IRB approach, a Bank may use the substitution framework to take into account the credit risk mitigating effects of recognized guarantees and recognized credit derivative contracts in calculating the risk-weighted amount of an exposure. Alternatively, a Bank may use the double default framework to take into account the credit risk mitigating effect of a recognized guarantee or recognized credit derivative contract for each exposure which meets the requirements for using the double default framework.

122. Consistent with the STD approach, a Bank may choose not to take into account the credit risk mitigating effects of guarantees and credit derivative contracts under the substitution framework or the double default framework, if doing so would result in a higher risk-weighted amount.

123. A Bank should have in place clearly documented criteria, methods and processes for taking into account the credit risk mitigating effect of recognized guarantees and recognized credit derivative contracts, and the effects should be taken into account consistently both for a given type of recognized guarantee or recognized credit derivative contract and over time.

124. In respect of credit derivative contracts, only credit default swaps and total return swaps that provide credit protection will be recognized. However, where a Bank buys the credit protection through a total return swap and records the net payments received on the swap as net income, but does not record offsetting deterioration in the value of the asset that is protected (either through reductions in fair value or by an addition to reserves or provisions), the credit protection will not be recognized. Credit linked notes issued by the Bank which fulfil the operational requirements for credit derivative contracts will be treated as cash collateralized transactions (see paragraph 101).

Corporate, Sovereign and Bank Exposures

<u>(a) Substitution framework</u>

125. Under the substitution framework, there are two approaches for taking into account the credit risk mitigating effect of recognized guarantees and recognized credit derivative contracts: (i) the foundation IRB approach and (ii) the advanced IRB approach. Under the substitution framework, credit risk mitigation in the form of guarantees and credit derivative contracts should not reflect the effect of double default. Consequently, to the extent that the credit risk mitigation is recognized by a Bank, the adjusted risk-weight will not be less than that of a comparable direct exposure to the credit protection provider.

Foundation IRB Approach

126. For a Bank using the foundation IRB approach, the treatment of recognized guarantees and recognized credit derivative contracts closely follows that under the comprehensive approach to the treatment of recognized collateral under the STD approach.

127. The credit risk mitigating effect of recognized guarantees and credit derivative contracts is taken into account as follows:

(i) For the covered portion of the exposure, a risk-weight is derived by taking the risk-weight function applicable to the IRB class/subclass to which the credit protection provider belongs, and the PD associated with the internal obligor grade of the credit protection provider or the PD of an obligor grade falling between the internal obligor grades of the underlying obligor and the credit protection provider if the Bank considers that a full substitution treatment may not be warranted.

(ii) The Bank may replace the LGD of the underlying exposure with the LGD applicable to the guarantee/credit derivative contract taking into account seniority and any recognized collateral of the credit protection.

(iii) The uncovered portion of the exposure is assigned the risk-weight associated with the underlying obligor.

128. Where partial coverage exists, or where there is a currency mismatch or maturity mismatch between the underlying obligation and the credit protection, a Bank should split the exposure into a covered and an uncovered portion as follows:

(i) <u>proportional cover</u> – Where the amount guaranteed, or against which credit protection is held, is less than the amount of the exposure, and the secured and unsecured portions are of equal seniority (i.e. the Bank and the credit protection provider share losses on a pro-rata basis), capital relief will be afforded on a proportional basis. That means the protected portion of the exposure will receive the treatment applicable to recognized guarantees/credit derivative contracts, with the remainder treated as unsecured.

(ii) tranched cover – Where a Bank has entered into a transaction under which a portion of the credit risk of an exposure in one or more tranches is transferred to one or more credit protection providers and the remaining portion of the credit risk of the exposure is retained by the Bank, and the portion of the credit risk transferred and the portion of the credit risk retained are of different seniority, the Bank should treat the transaction as a securitization transaction.

(iii) Currency mismatch / maturity mismatch – The treatment of currency mismatch is set out in paragraphs 140 and 141 and that of maturity mismatch is set out in paragraphs 142 to 144.

Advanced IRB Approach

129. A Bank using the advanced IRB approach may reflect the credit risk mitigating effect of recognized guarantees and recognized credit derivative contracts through adjusting either <u>PD</u> or <u>LGD</u> estimates. Whether adjustments are done through PD or LGD, they should be done in a

consistent manner for a given type of guarantees or credit derivative contracts. In doing so, the Bank should not include the effect of double default in such adjustments. Consequently, the adjusted risk-weight should not be less than that of a comparable direct exposure to the credit protection provider.

There are no restrictions on the types of eligible guarantors. The bank must, however, have clearly specified criteria for the types of guarantors it will recognize for regulatory capital purposes.
(Please refer to Paragraph 483 of International Convergence of Capital Measurement and Capital Standards – June 2006)

129A. A bank must have clearly specified criteria for adjusting borrower grades or LGD estimates (or in the case of retail and eligible purchased receivables, the process of allocating exposures to pools) to reflect the impact of guarantees for regulatory capital purposes. These criteria must be as detailed as the criteria for assigning exposures to grades consistent with paragraphs 410 and 411, International Convergence of Capital Measurement and Capital Standards – June 2006 and must follow all minimum requirements for assigning borrower or facility ratings set out in this document. The criteria must be plausible and intuitive, and must address the guarantor's ability and willingness to perform under the guarantee. The criteria must also 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 borrower's ability to repay. The bank's criteria must also consider the extent to which residual risk to the borrower remains, for example a currency mismatch between the guarantee and the underlying exposure.

In adjusting borrower grades or LGD estimates (or in the case of retail and eligible purchased receivables, the process of allocating exposures to pools), banks must take all relevant available information into account.
(Please refer to Paragraph 485-487 of International Convergence of Capital Measurement and Capital Standards – June 2006)

129B. The minimum requirements for guarantees are relevant also for single-name credit derivatives. Additional considerations arise in respect of asset mismatches. The criteria used for assigning adjusted borrower grades or LGD estimates (or pools) for exposures hedged with credit derivatives must require that the asset on which the protection is based (the reference asset) cannot be different from the underlying asset, unless the conditions outlined in the foundation approach are met.

In addition, the criteria must address the payout structure of the credit derivative and conservatively assess the impact this has on the level and timing of recoveries. The bank must also consider the extent to which other forms of residual risk remain.
(Please refer to Paragraph 488 of International Convergence of Capital Measurement and Capital Standards – June 2006)

129C. The minimum requirements outlined in paragraphs 480 to 489, International Convergence of Capital Measurement and Capital Standards – June 2006, apply to banks using the foundation LGD estimates with the following exceptions:
(1)The bank is not able to use an "LGD-adjustment" option; and
(2)The range of eligible guarantees and guarantors is limited to those outlined in BIS guidelines outlined in paragraph 302, International Convergence of Capital Measurement and Capital Standards – June 2006.

(Please refer to Paragraph 490 of International Convergence of Capital Measurement and Capital Standards – June 2006)

130. A bank relying on own-estimates of LGD has the option to adopt the treatment outlined above for banks under the foundation IRB approach (paragraphs 302 to 305, International Convergence of Capital Measurement and Capital Standards – June 2006), or to make an adjustment to its LGD estimate of the exposure to reflect the presence of the guarantee or credit derivative. Under this option, there are no limits to the range of eligible guarantors although the set of minimum requirements provided in paragraphs 483 and 484, International Convergence of Capital Measurement and Capital Standards – June 2006, concerning the type of guarantee must be satisfied. For credit derivatives, the requirements of paragraphs 488 and 489, International Convergence of Capital Measurement and Capital Standards – June 2006, must be satisfied. When credit derivatives do not cover the restructuring of the underlying obligation, the partial recognition set out in paragraph 192, International Convergence of Capital Measurement and Capital Standards – June 2006 applies.

Operational requirements for recognition of double default

130(i). A bank using an IRB approach has the option of using the substitution approach in determining the appropriate capital requirement for an exposure. However, for exposures hedged by one of the following instruments the double default framework according to paragraphs 284 (i) to 284 (iii), International Convergence of Capital Measurement and Capital Standards – June 2006, may be applied subject to the additional operational requirements set out in paragraph 307 (ii), International Convergence of Capital Measurement and Capital Standards – June 2006. A bank may decide separately for each eligible exposure to apply either the double default framework or the substitution approach.

(a) Single-name, unfunded credit derivatives (e.g. credit default swaps) or single- name guarantees.
(b) First-to-default basket products — the double default treatment will be applied to the asset within the basket with the lowest risk-weighted amount.
(c) nth-to-default basket products — the protection obtained is only eligible for consideration under the double default framework if eligible (n-1)th default protection has also been obtained or where (n-1) of the assets within the basket have already defaulted.

130(ii). The double default framework is only applicable where the following conditions are met.

(a) The risk weight that is associated with the exposure prior to the application of the framework does not already factor in any aspect of the credit protection.
(b) The entity selling credit protection is a bank. This does not include PSEs and MDBs, even though claims on these may be treated as claims on banks according to paragraph 230, International Convergence of Capital Measurement and Capital Standards – June 2006 investment firm or insurance company (but only those that are in the business of providing credit protection, including mono-lines, re-insurers, and non-sovereign credit export agencies - By non-sovereign it is meant that credit protection in question does not benefit from any explicit sovereign counter-guarantee.), referred to as a financial firm, that:

- is regulated in a manner broadly equivalent to that in this Framework (where there is appropriate supervisory oversight and transparency/ market discipline), or externally rated as at least investment grade by a credit rating agency deemed suitable for this purpose by supervisors;
- had an internal rating with a PD equivalent to or lower than that associated with an external A- rating at the time the credit protection for an exposure was first provided or for any period of time thereafter; and has an internal rating with a PD equivalent to or lower than that associated with an external investment-grade rating.

(c) The underlying obligation is:

- a corporate exposure as defined in paragraphs 218 to 228, International Convergence of Capital Measurement and Capital Standards – June 2006, (excluding specialized lending exposures for which the supervisory slotting criteria approach described in paragraphs 275 to 282, International Convergence of Capital Measurement and Capital Standards – June 2006, is being used); or
- A claim on a PSE that is not a sovereign exposure as defined in paragraph 229, International Convergence of Capital Measurement and Capital Standards – June 2006; or
- A loan extended to a small business and classified as a retail exposure as defined in paragraph 231, International Convergence of Capital Measurement and Capital Standards – June 2006.

(d) The underlying obligor is not:

- A financial firm as defined in (b); or
- A member of the same group as the protection provider.

(e) The credit protection meets the minimum operational requirements for such instruments as outlined in paragraphs 189 to 193, International Convergence of Capital Measurement and Capital Standards – June 2006.

(f)In keeping with paragraph 190, International Convergence of Capital Measurement and Capital Standards – June 2006, for guarantees, for any recognition of double default effects for both guarantees and credit derivatives a bank must have the right and expectation to receive payment from the credit protection provider without having to take legal action in order to pursue the counterparty for payment. To the extent possible, a bank should take steps to satisfy itself that the protection provider is willing to pay promptly if a credit event should occur.

(g) The purchased credit protection absorbs all credit losses incurred on the hedged portion of an exposure that arise due to the credit events outlined in the contract.

(h) If the payout structure provides for physical settlement, then there must be legal certainty with respect to the deliverability of a loan, bond, or contingent liability. If a bank intends to deliver an obligation other than the underlying exposure, it must ensure that the deliverable obligation is sufficiently liquid so that the bank would have the ability to purchase it for delivery in accordance with the contract.

(i) The terms and conditions of credit protection arrangements must be legally confirmed in writing by both the credit protection provider and the bank.

(j) In the case of protection against dilution risk, the seller of purchased receivables must not be a member of the same group as the protection provider.
(k)There is no excessive correlation between the creditworthiness of a protection provider and the obligor of the underlying exposure due to their performance being dependent on common factors beyond the systematic risk factor. The bank has a process to detect such excessive correlation. An example of a situation in which such excessive correlation would arise is when a protection provider guarantees the debt of a supplier of goods or services and the supplier derives a high proportion of its income or revenue from the protection provider.

(Please refer to Paragraph 307 of International Convergence of Capital Measurement and Capital Standards – June 2006)

(b) Double default framework

131. Corporate exposures (excluding specialized lending under supervisory slotting criteria approach) or public sector entity exposures (excluding exposures to sovereign foreign public sector entities) that are hedged by recognized guarantees/credit derivative contracts and satisfy the relevant requirements as set out by BCBS are eligible for the double default framework for recognition of the credit risk mitigating effect.

132. The risk-weighted amount of hedged exposures should be calculated according to the risk-weight function set out in paragraph 18 (and, where applicable, adjusted by paragraph 20(ii) in respect of SME corporates). The risk-weighted amount of the unhedged exposure should be calculated in the same way as for all other corporate exposures to the same obligor of the underlying exposure according to the risk-weight function set out in paragraph 16 (and, where applicable, adjusted by paragraph 20(i) in respect of SME corporates).

Retail Exposures

133. A Bank using the retail IRB approach may use the substitution framework as set out in paragraphs 129 and 130 to take account of the credit risk mitigating effects of recognized guarantees and recognized credit derivative contracts in calculating the risk-weighted amount of a retail exposure.

For retail exposures, where guarantees exist, either in support of an individual obligation or a pool of exposures, a bank may reflect the risk-reducing effect either through its estimates of PD or LGD, provided this is done consistently. In adopting one or the other technique, a bank must adopt a consistent approach, both across types of guarantees and over time.

(Please refer to Paragraph 480 of International Convergence of Capital Measurement and Capital Standards – June 2006)

Equity Exposures

134. A Bank using the PD/LGD approach may use the substitution approach set out in paragraphs 126 to 128 to take account of the credit risk mitigating effects of recognized guarantees and recognized credit derivative contracts in calculating the risk-weighted amount of an equity exposure.

Purchased Receivables

135. For both purchased corporate and retail receivables, recognized guarantees and recognized credit derivative contracts under the substitution framework will be recognized generally using the substitution framework as set out in paragraphs 126 to 130, without regard to whether the guarantee or contract, as the case may be, covers default risk or dilution risk, or both.

136. If the recognized guarantee/credit derivative contract covers both the purchased receivable's default risk and dilution risk, a Bank should substitute the risk-weight of the exposure to the credit protection provider for the sum of the purchased receivable's risk-weights for default risk and dilution risk which would otherwise be allocated to the exposure in respect of the purchased receivable in accordance with paragraphs 73 to 78.

137. If the recognized guarantee/credit derivative contract covers only default risk or dilution risk, but not both, a Bank should substitute the risk-weight of the exposure to the credit protection provider for the risk-weight which would otherwise be allocated in respect of the default risk or dilution risk, as the case may be, covered by the guarantee/contract for the purpose of calculating the risk-weighted amount of the Bank's exposure for default risk or dilution risk, as the case may be, in respect of the purchased receivable. The risk-weighted amount of the purchased receivable for the other risk component (being default risk or dilution risk not covered by the guarantee/contract, as the case may be), will then be added.

138. If the recognized guarantee/credit derivative contract covers only a portion of the default risk and/or dilution risk, a Bank should divide the exposure into a covered portion and an uncovered portion for the default risk and dilution risk in accordance with paragraph 128 for proportional or tranched coverage. A Bank should calculate the risk-weighted amount of the uncovered portion of the exposure in respect of default risk and dilution risk in accordance with paragraphs 73 to 78 and the risk-weighted amount of the covered portion of the exposure in respect of default risk and dilution risk in accordance with paragraph 136.

139. If the recognized guarantee/credit derivative contract covers only the dilution risk in respect of a purchased corporate receivable and the exposure meets the requirements set out in the Rules, a Bank may use the double default framework to calculate the risk weighted amount for dilution risk of the hedged exposure. In this case, paragraph 18 (and, where applicable, adjusted by paragraph 20(ii) in respect of SME corporates) apply with PDo equal to the estimated EL for dilution risk, LGDg equal to 100%, and M set according to paragraph 48.

Currency Mismatches

140. Where a foreign currency mismatch occurs, i.e. when the credit protection is denominated in a currency different from that of the underlying obligation, the portion covered by the credit protection should be reduced by a standard haircut of 8%.

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

where:

Ga = Credit protection covered portion adjusted for currency mismatch

G = Maximum amount payable to the Bank under the credit protection

Hfx = Haircut applicable for currency mismatch between the credit protection and underlying obligation pursuant to the standard supervisory haircuts for the comprehensive approach to the treatment of recognized collateral subject to adjustment .

141. The 8% haircut is based on a 10-business day holding period, daily remargining and daily marking-to-market.

Maturity Mismatches

142. The maturity of both the underlying exposure and the credit protection (i.e. on-balance sheet netting, recognized collateral, guarantees and credit derivative contracts) should be defined conservatively. The effective maturity of the underlying exposure should be regarded as the longest possible remaining time before the obligor is scheduled to fulfill its obligation, taking into account any applicable grace period. For the credit protection, embedded options which may reduce the term of the credit protection should be taken into account such that the shortest possible effective maturity should be considered. Where a call is at the discretion of the protection provider, the maturity will always be the first call date. If the call is at the discretion of the Bank as the protection buyer but the terms of the arrangement of obligation of the hedge contain a positive incentive for the buyer to call the transaction before contractual maturity, the remaining time to the first call date will be deemed to be the effective maturity.

143. A maturity mismatch occurs where the residual maturity of the credit protection is less than that of the underlying exposure. The credit protection will be recognized when the hedge has an original maturity of longer than or equal to one year. As a result, the maturity of hedges for exposures with original maturities of less than one year must be matched to be recognized. In all cases, hedges with maturity mismatches will no longer be recognized when the hedges have a residual maturity of three months or less.

144. Where a recognized maturity mismatch exists, the value of the credit protection should be adjusted as follows:

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

where:

P_a = Value of credit protection adjusted for maturity mismatch

P = Value of credit protection adjusted for haircuts for price volatility of collateral and currency mismatch (if applicable)

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

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

M. Application of Scaling Factor

145. In determining the total risk-weighted amount under the IRB approach, SAMA will apply a scaling factor (which could be either greater than or less than one) to the risk weighted amount calculated for all IRB classes under the IRB approach (see also paragraph 2). The use of this scaling factor is to broadly maintain the aggregate level of minimum capital requirements derived from the revised capital adequacy framework.

146. The current best estimate of the scaling factor is 1.06. In applying this scaling factor, a Bank should multiply the risk-weighted amount calculated under the IRB approach by 1.06 for the computation of the capital adequacy ratio.

N. Treatment of Expected Losses and Eligible Provisions under IRB Approach

Determination of Total EL Amount

147. A Bank should sum the EL amount (i.e. EL x EAD) attributed to its corporate, sovereign, bank and retail exposures (excluding hedged exposures under the double default framework[1]) that are subject to the IRB approach to obtain a total EL amount.

EL for Exposures other than SL under Supervisory Slotting Criteria Approach

148. A bank should calculate the EL as PD x LGD for corporate, sovereign, bank and retail exposures which are not in default and not treated as hedged exposures under the double default framework. For corporate, sovereign, bank and retail exposures that are in default, a Bank should use its best estimate of EL.

149. **EL for SL under Supervisory Slotting Criteria Approach**

For SL under supervisory slotting criteria approach, EL is determined by multiplying by 8% the risk-weighted amount produced from the appropriate risk-weights as specified below:

Remaining Maturity	Strong	Good	Satisfactory	Weak	Default
Equal or more Than 2.5 years	5%	10%	35%	100%	625%
Less than 2.5 years	0%	5%	35%	100%	625%

[1]In general, most banks do not make provisions for the hedged portion of an exposure. Furthermore, the EL is dependent on the joint probability of default of the underlying obligor and the credit protection provider and would therefore be minimal. Under these circumstances, the EL for the hedged portion of an exposure is assumed to be zero.

150. Where a Bank assigns preferential risk-weights to its SL under supervisory slotting criteria approach in accordance with paragraph 23, then, for the purpose of calculating the risk-weighted amount of the SL, the Bank may assign preferential risk-weights of 0% and 5% to the SL which falls within the “strong” and “good” grades respectively in calculating the EL.

Determination of Total Eligible Provisions

151. Total eligible provisions is defined as the sum of eligible provisions that are attributed to corporate, sovereign, bank and retail exposures (excluding hedged exposures under the double default framework) that are subject to the IRB approach.

A Portion of Exposures subject to STD Approach to Credit Risk

152. A Bank using the STD approach for a portion of its credit exposures, either on a transitional basis, or on a permanent basis if the exposures subject to the STD approach are exempted from the IRB approach, should determine the portion of regulatory reserve for general banking risks and provisions that is attributed to exposures under the STD approach, or IRB approach. The treatment of such reserves and provisions attributed to exposures under the STD approach, whereas the IRB approach for this is outlined in paragraphs 155 to 157.

153. A bank should generally attribute the regulatory reserve for general banking risks and specific provisions on a pro-rata basis according to the proportion of the risk weighted amount subject to the STD approach, or IRB approach. However, when one approach to determining the risk-weighted amount (i.e. STD approach, or IRB approach) is used exclusively within an entity of the Bank’s consolidation group, the regulatory reserve for general banking risks and collective provisions booked within the entity using the STD approach may be attributed to exposures under the STD approach. Similarly, the regulatory reserve for general banking risks and specific provisions booked within an entity using the IRB approach may be attributed to the total eligible provisions as defined in paragraph 151.

154. The SAMA may, on a case-by-case basis, consider whether there are particular circumstances that justify a Bank using its internal allocation methodology for allocating the reserves for general banking risks and collective provisions for recognition in capital under the STD approach. A Bank should obtain the SAMA’s prior consent before such a method can be used.

Treatment of Total EL Amount and Total Eligible Provisions

155. A Bank using the IRB approach should compare the amount of total eligible provisions (see paragraph 151) with the total EL amount (see paragraphs 147 to 150).

156. Where the total EL amount exceeds total eligible provisions, the Bank should deduct the difference from its core capital and supplementary capital.

157. Where the total EL amount is less than total eligible provisions, the Bank should include the difference in its supplementary capital, up to a maximum of 0.6% of the risk weighted amount (excluding securitization exposures) calculated under the IRB approach.