Risk driver	Rating grade				
	Strong	**Good**	**Satisfactory**	**Weak**	**Default**
	70%	**90%**	**115%**	**250%**	**0%**
	Likely external assessment				
	BBB- or better	**BB+ to BB**	**BB- to B+**	**B to C-**	
Off-take risk					
• If there is a take-or-pay or fixed-price off-take contract	Excellent creditworthiness of off-taker. Strong termination clauses. Tenor of contract comfortably exceeds the maturity of the debt	Good creditworthiness of off-taker. Strong termination clauses. Tenor of contract exceeds the maturity of the debt	Acceptable financial standing of off-taker. Normal termination clauses. Tenor of contract generally matches the maturity of the debt	Weak off-taker. Weak termination clauses. Tenor of contract does not exceed the maturity of the debt	
• If there is no take-or-pay or fixed-price off-take contract	Project produces essential services or a commodity sold widely on a world market. Output can readily be absorbed at projected prices even at lower than historic market growth rates	Project produces essential services or a commodity sold widely on a regional market that will absorb it at projected prices at historical growth rates	Commodity is sold on a limited market that may absorb it only at lower than projected prices	Project output is demanded by only one or a few buyers or is not generally sold on an organised market	
Supply risk					
• Price, volume and transportation risk of feed-stocks. Supplier's track record and financial strength	Long-term supply contract with supplier of excellent financial standing	Long-term supply contract with supplier of good financial standing	Long-term supply contract with supplier of good financial standing – a degree of price risk may remain	Short-term supply contract or long-term supply contract with financially weak supplier – a degree of price risk definitely remains	
• Reserve risks such as natural resource development	Independently audited, proven and developed reserves well in excess of requirements over lifetime of the project	Independently audited, proven and developed reserves in excess of requirements over lifetime of the project	Proven reserves can supply the project adequately through the maturity of the debt	Project relies to some extent on potential and undeveloped reserves	

Risk driver	Rating grade				
	Strong	Good	Satisfactory	Weak	Default
	70%	90%	115%	250%	0%
	Likely external assessment				
	BBB- or better	BB+ to BB	BB- to B+	B to C-	
Strength of sponsor					
• Sponsor's track record, financial strength and country/sector experience	Strong sponsor with excellent track record and high financial standing	Good sponsor with satisfactory track record and good financial standing	Adequate sponsor with adequate track record and good financial standing	Weak sponsor with no or questionable track record and/or financial weaknesses	
• Sponsor support, as evidenced by equity, ownership clause and incentive to inject additional cash when necessary	Strong. Project is highly strategic for the sponsor (core business – long-term strategy)	Good. Project is strategic for the sponsor (core business – long-term strategy)	Acceptable. Project is considered important for the sponsor (core business)	Limited. Project is not key to sponsor's long-term strategy or core business	
Security package					
• Assignment of contracts and accounts	Fully comprehensive	Comprehensive	Acceptable	Weak	
• Pledge of assets, taking into account quality, value and liquidity of assets	First perfected security interest in all project assets, contracts, permits and accounts necessary to run the project	Perfected security interest in all project assets, contracts, permits and accounts necessary to run the project	Acceptable security interest in all project assets, contracts, permits and accounts necessary to run the project	Little security or collateral for lenders. Weak negative pledge clause	
• Lender's control over cash flow (e.g. cash sweeps, independent escrow accounts)	Strong	Satisfactory	Fair	Weak	

Risk driver	Rating grade				
	Strong	Good	Satisfactory	Weak	Default
	70%	90%	115%	250%	0%
	Likely external assessment				
	BBB- or better	BB+ to BB	BB- to B+	B to C-	
Security package					
• Strength of the covenant package (mandatory prepayments, payment deferrals, payment cascade and dividend restrictions	Covenant package is strong for this type of project Project may issue no additional debt	Covenant package is satisfactory for this type of project Project may issue extremely limited additional debt	Covenant package is fair for this type of project Project may issue limited additional debt	Covenant package is insufficient for this type of project Project may issue unlimited additional debt	
• Reserve funds (debt service, operations and maintenance, renewal and replacement, unforeseen events, etc)	Longer than average coverage period. All reserve funds fully funded in cash or letters of credit from highly rated bank	Average coverage period. All reserve funds fully funded	Average coverage period. All reserve funds fully funded	Shorter than average coverage period. Reserve funds funded from operating cash flows	

(ii) In the case of income-producing real estate and high-volatility commercial real estate exposures, as follows:

Risk driver	Rating grade				
	Strong	**Good**	**Satisfactory**	**Weak**	**Default**
	Risk weights for income-producing real estate exposures				**0%**
	70%	**90%**	**115%**	**250%**	
	Risk weights for high-volatility commercial real estate exposures				
	95%	**120%**	**140%**	**250%**	
Financial strength					
• Market conditions	The supply and demand for the project's type and location are currently in equilibrium. The number of competitive properties coming to market is equal to or lower than forecasted demand.	The supply and demand for the project's type and location are currently in equilibrium. The number of competitive properties coming to market is roughly equal to forecasted demand.	Market conditions are largely in equilibrium. Competitive properties are coming on the market and others are in the planning stages. The project's design and capabilities may not be state of the art compared to new projects.	Market conditions are weak. It is uncertain when conditions will improve and return to equilibrium. The project is losing tenants at lease expiration. New lease terms are less favourable compared to those expiring.	
• Financial ratios and advance rate	The property's debt service coverage ratio (DSCR) is considered strong (DSCR is not relevant for the construction phase) and its loan or lending-to-value ratio (LTV) is considered low given its property type. Where a secondary market exists, the transaction is underwritten to market standards.	The DSCR (not relevant for the development of real estate) and LTV are satisfactory. Where a secondary market exists, the transaction is underwritten to market standards.	The property's DSCR has deteriorated and its value has fallen, increasing its LTV ratio.	The property's DSCR has deteriorated significantly and its LTV ratio is well above underwriting standards for new loans.	
• Stress analysis	The property's resources, contingencies and liability structure allow it to meet its financial obligations during a period of severe financial stress (e.g. interest rates, economic growth)	The property can meet its financial obligations under a sustained period of financial stress (e.g. interest rates, economic growth). The property is likely to default only under severe economic conditions.	During an economic downturn, the property would suffer a decline in revenue that would limit its ability to fund capital expenditures and significantly increase the risk of default.	The property's financial condition is strained and is likely to default unless conditions improve in the near term.	
Cash-flow predictability					
• In the case of complete and	The property's leases are long-term with creditworthy	Most of the property's leases are long-term, with	Most of the property's leases are medium rather	The property's leases are of various terms with	

Risk driver	Rating grade				
	Strong	Good	Satisfactory	Weak	Default
	Risk weights for income-producing real estate exposures				0%
	70%	90%	115%	250%	
	Risk weights for high-volatility commercial real estate exposures				
	95%	120%	140%	250%	
stabilised property.	tenants and the maturity dates are scattered. The property has a track record of tenant retention upon lease expiration. Its vacancy rate is low. Expenses (maintenance, insurance, security, and property taxes) are predictable.	tenants that range in creditworthiness. The property experiences a normal level of tenant turnover upon lease expiration. The property's vacancy rate is low. Expenses are predictable.	than long-term with tenants that range in creditworthiness. The property experiences a moderate level of tenant turnover upon lease expiration. The property's vacancy rate is moderate. Expenses are relatively predictable but vary in relation to revenue.	tenants that range in creditworthiness. The property experiences a very high level of tenant turnover upon lease expiration. The property's vacancy rate is high. Significant expenses are incurred preparing space for new tenants.	
• In the case of complete but not stabilised property	Leasing activity meets or exceeds projections. The project should achieve stabilisation in the near future	Leasing activity meets or exceeds projections. The project should achieve stabilisation in the near future	Most leasing activity is within projections. However, stabilisation will not occur for some time.	Market rents do not meet expectations. Despite achieving target occupancy rate, cash flow coverage is tight due to disappointing revenue.	
• In the case of construction phase	The property is entirely pre-leased through the tenor of the loan or pre-sold to an investment grade tenant or buyer or the bank has a binding commitment for take-out financing from an investment grade lender.	The property is entirely pre-leased or pre-sold to a creditworthy tenant or buyer or the bank has a binding commitment for permanent financing from a creditworthy lender.	Leasing activity is within projections but the building may not be pre-leased and there may not exist a take-out financing. The bank may be the permanent lender.	The property is deteriorating due to cost overruns, market deterioration, tenant cancellations or other factors. There may be a dispute with the party providing the permanent financing.	
Asset characteristics					
• Location	The property is located in a highly desirable location	Property is located in a desirable location that is	The property location lacks	The property's location, configuration, design and	

Risk driver	Rating grade				
	Strong	**Good**	**Satisfactory**	**Weak**	**Default**
	Risk weights for income-producing real estate exposures				**0%**
	70%	**90%**	**115%**	**250%**	
	Risk weights for high-volatility commercial real estate exposures				
	95%	**120%**	**140%**	**250%**	
	that is convenient to services that tenants desire.	convenient to services that tenants desire.	a competitive advantage.	maintenance have contributed to the property's difficulties.	
• Design and condition	Property is favoured due to its design, configuration, and maintenance, and is highly competitive with new properties.	Property is appropriate in terms of its design, configuration and maintenance. The property's design and capabilities are competitive with new properties.	Property is adequate in terms of its configuration, design and maintenance.	Weaknesses exist in the property's configuration, design or maintenance.	
• Property is under construction	Construction budget is conservative and technical hazards are limited. Contractors are highly qualified.	Construction budget is conservative and technical hazards are limited. Contractors are highly qualified.	Construction budget is adequate and contractors are appropriately qualified.	Project is over budget or unrealistic given its technical hazards. Contractors may be under qualified.	

Risk driver	Rating grade				
	Strong	Good	Satisfactory	Weak	Default
	Risk weights for income-producing real estate exposures				0%
	70%	90%	115%	250%	
	Risk weights for high-volatility commercial real estate exposures				
	95%	120%	140%	250%	
Strength of sponsor/ developer					
• Financial capacity and willingness to support the property.	The sponsor/developer made a substantial cash contribution to the construction or purchase of the property. The sponsor/developer has substantial resources and limited direct and contingent liabilities. The sponsor/developer's properties are diversified geographically and in terms of property type.	The sponsor/developer made a material cash contribution to the construction or purchase of the property. The sponsor/developer's financial condition allows it to support the property in the event of a cash flow shortfall. The sponsor/developer's properties are located in several geographic regions.	The sponsor/developer's contribution may be immaterial or non-cash. The sponsor/developer is average to below average in terms of financial resources.	The sponsor/developer lacks capacity or willingness to support the property.	
• Reputation and track record with similar properties.	Experienced management and high sponsors' quality. Strong reputation and lengthy and successful record with similar properties.	Appropriate management and sponsors' quality. The sponsor or management has a successful record with similar properties.	Moderate management and sponsors' quality. Management or sponsor track record does not raise serious concerns.	Ineffective management and substandard sponsors' quality. Management and sponsor difficulties have contributed to difficulties in managing properties in the past.	
• Relationships with relevant real estate role players	Strong relationships with leading role players such as leasing agents.	Proven relationships with leading role players such as leasing agents.	Adequate relationships with leasing agents and other parties providing important real estate services.	Poor relationships with leasing agents and/or other parties providing important real estate services.	

Risk driver	Rating grade				
	Strong	**Good**	**Satisfactory**	**Weak**	**Default**
	Risk weights for income-producing real estate exposures				**0%**
	70%	**90%**	**115%**	**250%**	
	Risk weights for high-volatility commercial real estate exposures				
	95%	**120%**	**140%**	**250%**	
Security package					
• Nature of lien	Perfected first lien	Perfected first lien	Perfected first lien	Ability of lender to foreclose is constrained	
• Assignment of rents in the case of projects leased to long-term tenants	The lender has obtained an assignment. They maintain current tenant information that would facilitate providing notice to remit rents directly to the lender, such as a current rent roll and copies of the project's leases.	The lender has obtained an assignment. They maintain current tenant information that would facilitate providing notice to the tenants to remit rents directly to the lender, such as current rent roll and copies of the project's leases.	The lender has obtained an assignment. They maintain current tenant information that would facilitate providing notice to the tenants to remit rents directly to the lender, such as current rent roll and copies of the project's leases.	The lender has not obtained an assignment of the leases or has not maintained the information necessary to readily provide notice to the building's tenants.	
• Quality of the insurance coverage	Appropriate	Appropriate	Appropriate	Substandard	

(iii) In the case of object finance, as follows:

Risk driver	Rating grades				
	Strong	Good	Satisfactory	Weak	Default
	70%	90%	115%	250%	0%
	Likely external assessment				
	BBB- or better	BB+ to BB	BB- to B+	B to C-	
Financial strength					
• Market conditions	Demand is strong and growing. Strong entry barriers, low sensitivity to changes in technology and economic outlook.	Demand is strong and stable. Some entry barriers, some sensitivity to changes in technology and economic outlook.	Demand is adequate and stable. Limited entry barriers, significant sensitivity to changes in technology and economic outlook.	Demand is weak and declining. Vulnerable to changes in technology and economic outlook. Highly uncertain environment.	
• Financial ratios such as debt service coverage ratio and loan-to-value ratio	Strong financial ratios considering the type of asset. Very robust economic assumptions.	Strong / acceptable financial ratios considering the type of asset. Robust project economic assumptions.	Standard financial ratios for the asset type.	Aggressive financial ratios considering the type of asset.	
• Stress analysis	Stable long-term revenues. Capable of withstanding severely stressed conditions through an economic cycle.	Satisfactory short-term revenues. Loan can withstand some financial adversity. Default is only likely under severe economic conditions.	Uncertain short-term revenues. Cash flows are vulnerable to stresses that are not uncommon through an economic cycle. The loan may default in a normal downturn.	Revenues subject to strong uncertainties. Even in normal economic conditions the asset may default, unless conditions improve.	
• Market liquidity	Market is structured on a worldwide basis. Assets are highly liquid.	Market is worldwide or regional. Assets are relatively liquid.	Market is regional with limited prospects in the short term, implying lower liquidity.	Local market and/or poor visibility. Low or no liquidity, particularly on niche markets.	

Risk driver	Rating grades				
	Strong	**Good**	**Satisfactory**	**Weak**	**Default**
	70%	**90%**	**115%**	**250%**	**0%**
	Likely external assessment				
	BBB- or better	**BB+ to BB**	**BB- to B+**	**B to C-**	
Political and legal environment					
• Political risk, including transfer risk	Very low. Strong mitigation instruments when required	Low. Satisfactory mitigation instruments when required	Moderate. Fair mitigation instruments.	High. No or weak mitigation instruments.	
• Legal and regulatory risks	Jurisdiction is favourable to repossession and enforcement of contracts.	Jurisdiction is favourable to repossession and enforcement of contracts.	Jurisdiction is generally favourable to repossession and enforcement of contracts, even if repossession might be long and/or difficult.	Poor or unstable legal and regulatory environment. Jurisdiction may make repossession and enforcement of contracts lengthy or impossible.	
Transaction characteristics					
• Financing term compared to the economic life of the asset	Full payout profile/minimum balloon. No grace period.	Balloon more significant, but still at satisfactory levels.	Important balloon with potential grace periods.	Repayment in fine or high balloon.	

Risk driver	Rating grades				
	Strong	Good	Satisfactory	Weak	Default
	70%	90%	115%	250%	0%
	Likely external assessment				
	BBB- or better	BB+ to BB	BB- to B+	B to C-	
Operating risk					
• Permits / licensing	All permits have been obtained. Asset meets current and foreseeable safety regulations.	All permits obtained or in the process of being obtained. Asset meets current and foreseeable safety regulations.	Most permits obtained or in process of being obtained, outstanding ones considered routine. Asset meets current safety regulations.	Problems in obtaining all required permits. Part of the planned configuration and/or planned operations might need to be revised.	
• Scope and nature of operations and maintenance contracts	Strong long-term operations and maintenance contract, preferably with contractual performance incentives, and/or operations and maintenance reserve accounts (if needed)	Long-term operations and maintenance contract, and/or operations and maintenance reserve accounts (if needed)	Limited operations and maintenance contract or operations and maintenance reserve account (if needed)	No operations and maintenance contract. Risk of high operational cost overruns beyond mitigants.	
• Operator's financial strength, track record in managing the asset type and capability to re-market asset when it comes off-lease	Excellent track record and strong re-marketing capability.	Satisfactory track record and re-marketing capability.	Weak or short track record and uncertain re-marketing capability.	No or unknown track record and inability to re-market the asset.	

Risk driver	Rating grades				
	Strong	Good	Satisfactory	Weak	Default
	70%	90%	115%	250%	0%
	Likely external assessment				
	BBB- or better	BB+ to BB	BB- to B+	B to C-	
Asset characteristics					
• Configuration, size, design and maintenance (i.e. age, size for a plane) compared to other assets in the same market	Strong advantage in design and maintenance. Configuration is standard such that the object meets a liquid market.	Above average design and maintenance. Standard configuration, maybe with very limited exceptions - such that the object meets a liquid market.	Average design and maintenance. Configuration is somewhat specific and therefore might cause a narrower market for the object.	Below average design and maintenance. Asset is near the end of its economic life. Configuration is very specific. The market for the object is very narrow.	
• Resale value	Current resale value is well above debt value.	Resale value is moderately above debt value.	Resale value is slightly above debt value.	Resale value is below debt value.	
• Sensitivity of the asset value and liquidity to economic cycles	Asset value and liquidity are relatively insensitive to economic cycles.	Asset value and liquidity are sensitive to economic cycles.	Asset value and liquidity are quite sensitive to economic cycles.	Asset value and liquidity are highly sensitive to economic cycles.	
Strength of sponsor					
• Operator's financial strength, track record in managing the asset type and capability to re-market asset when it comes off-lease	Excellent track record and strong re-marketing capability.	Satisfactory track record and re-marketing capability.	Weak or short track record and uncertain re-marketing capability.	No or unknown track record and inability to re-market the asset.	
• Sponsors' track record and financial strength	Sponsors with excellent track record and high financial standing.	Sponsors with good track record and good financial standing.	Sponsors with adequate track record and good financial standing.	Sponsors with no or questionable track record and/or financial weaknesses.	

Risk driver	Rating grades				
	Strong	Good	Satisfactory	Weak	Default
	70%	90%	115%	250%	0%
	Likely external assessment				
	BBB- or better	BB+ to BB	BB- to B+	B to C-	
Security package					
• Asset control	Legal documentation provides the lender effective control (e.g. a first perfected security interest, or a leasing structure including such security) on the asset, or on the company owning it.	Legal documentation provides the lender effective control (e.g. a perfected security interest, or a leasing structure including such security) on the asset, or on the company owning it.	Legal documentation provides the lender effective control (e.g. a perfected security interest, or a leasing structure including such security) on the asset, or on the company owning it.	The contract provides little security to the lender and leaves room to some risk of losing control in respect of the asset.	
• Rights and means at the lender's disposal to monitor the location and condition of the asset	The lender is able to monitor the location and condition of the asset, at any time and place (regular reports, possibility to lead inspections).	The lender is able to monitor the location and condition of the asset, almost at any time and place.	The lender is able to monitor the location and condition of the asset, almost at any time and place.	The ability of the lender to monitor the location and condition of the asset is limited.	
• Insurance against damages	Strong insurance coverage including collateral damages with top quality insurance companies.	Satisfactory insurance coverage (not including collateral damages) with good quality insurance companies.	Fair insurance coverage (not including collateral damages) with acceptable quality insurance companies.	Weak insurance coverage (not including collateral damages) or with weak quality insurance companies.	

(iv) In the case of commodity finance, as follows:

Risk driver	Rating grade				
	Strong	**Good**	**Satisfactory**	**Weak**	**Default**
	70%	**90%**	**115%**	**250%**	**0%**
	Likely external assessment				
	BBB- or better	**BB+ to BB**	**BB- to B+**	**B to C-**	
Financial strength • Degree of over-collateralisation of trade	Strong	Good	Satisfactory	Weak	
Political and legal environment • Country risk	No country risk	Limited exposure to country risk (in particular, offshore location of reserves in an emerging country)	Exposure to country risk (in particular, offshore location of reserves in an emerging country)	Strong exposure to country risk (in particular, inland reserves in an emerging country)	
• Mitigation of country risks	Very strong mitigation Strong offshore mechanisms Strategic commodity 1st class buyer	Strong mitigation Offshore mechanisms Strategic commodity Strong buyer	Acceptable mitigation Offshore mechanisms Less strategic commodity Acceptable buyer	Only partial mitigation No offshore mechanisms Non-strategic commodity Weak buyer	
Asset characteristics • Liquidity and susceptibility to damage	Commodity is quoted and can be hedged through futures or OTC instruments. Commodity is not susceptible to damage.	Commodity is quoted and can be hedged through OTC instruments. Commodity is not susceptible to damage.	Commodity is not quoted but is liquid. There is uncertainty about the possibility of hedging. Commodity is not susceptible to damage.	Commodity is not quoted. Liquidity is limited given the size and depth of the market. No appropriate hedging instruments. Commodity is susceptible to damage.	

Risk driver	Rating grade				
	Strong	**Good**	**Satisfactory**	**Weak**	**Default**
	70%	**90%**	**115%**	**250%**	**0%**
	Likely external assessment				
	BBB- or better	**BB+ to BB**	**BB- to B+**	**B to C-**	
Strength of sponsor					
• Financial strength of trader	Very strong, relative to trading philosophy and risks	Strong	Adequate	Weak	
• Track record, including ability to manage the logistic process	Extensive experience with the type of transaction in question. Strong record of operating success and cost efficiency.	Sufficient experience with the type of transaction in question. Above average record of operating success and cost efficiency.	Limited experience with the type of transaction in question. Average record of operating success and cost efficiency.	Limited or uncertain track record in general. Volatile costs and profits.	
• Trading controls and hedging policies	Strong standards for counterparty selection, hedging, and monitoring.	Adequate standards for counterparty selection, hedging, and monitoring.	Past deals have experienced no or minor problems.	Trader has experienced significant losses on past deals.	
• Quality of financial disclosure	Excellent	Good	Satisfactory	Financial disclosure contains some uncertainties or is insufficient.	
Security package					
• Asset control	First perfected security interest provides the lender legal control over the assets at any time if needed	First perfected security interest provides the lender legal control over the assets at any time if needed	At some point in the process, there is a rupture in the control of the assets by the lender. The rupture is mitigated by knowledge of the trade process or a third party undertaking as the case may be.	Contract leaves room for some risk of losing control over the assets. Recovery may be jeopardised.	
• Insurance against damages	Strong insurance coverage including collateral damages with top quality insurance companies.	Satisfactory insurance coverage (not including collateral damages) with good quality insurance companies.	Fair insurance coverage (not including collateral damages) with acceptable quality insurance companies.	Weak insurance coverage (not including collateral damages) or with weak quality insurance companies.	

(iv) Retail exposures

A bank that adopted the foundation IRB approach for the measurement of the bank's exposure to credit risk shall calculate its risk-weighted assets in respect of retail exposures through the application of the relevant formulae and risk components specified below:

(A) In the case of residential mortgage exposures, which residential mortgage exposures are not in default, as follows:

RWA = K x 12,5 x EAD

where:

RWA is the relevant risk-weighted asset amount

K is the capital requirement, which capital requirement shall be calculated through the application of the formula specified below

K = LGD × N[(1 - R)^-0.5 × G(PD) + (R / (1 - R))^0.5 × G(0.999)] - PD x LGD

PD is the probability of default, and constitutes a ratio

A bank shall apply a PD ratio equal to the higher of the one-year PD associated with the relevant internal grade to which the pool of exposures is assigned, or 0.03 per cent.

LGD is the loss-given-default ratio estimated by the bank, provided that-

(i) the LGD estimate in respect of retail exposures secured by residential property shall in no case be less than 10 per cent unless the said exposure is protected by a guarantee obtained from a sovereign;

(ii) the Registrar may amend the minimum LGD ratio of 10 per cent subject to such conditions as may be specified in writing by the Registrar.

R is the correlation, which correlation shall be a constant number equal to 0.15

EAD is the exposure at default, which exposure shall be measured gross of any specific credit impairment raised or partial write-offs made by the reporting bank

A bank shall measure its exposure at default as follows:

(i) In the case of any drawn amounts, the exposure at default shall be equal to the sum of the drawn amounts after the effect of set-off in accordance with the relevant requirements specified in regulation 13 has been recognised, provided that the said exposure shall not be less than the sum of-

(aa) the amount by which the bank's capital requirement would be reduced when the exposure amounts are written off in full; and

(bb) any specific credit impairment raised or partial write-off made by the reporting bank in respect of the exposure amounts.

(ii) In the case of off-balance-sheet items other than foreign exchange or interest rate commitments, the exposure at default shall be equal to the sum of any committed but undrawn amounts multiplied by the credit conversion factors estimated by the reporting bank, provided that-

(aa) when the relevant retail exposures have uncertain future drawdown, such as credit cards, the bank shall take into account its history and/or expectation of additional drawings prior to default;

(bb) when the bank's estimate of EAD does not incorporate credit conversion factors in respect of additional drawings on undrawn lines prior to default, the bank shall make appropriate adjustments to its estimates of LGD;

(cc) when the bank has securitised the drawn balances of retail facilities, the bank shall by way of credit-conversion factors continue to include its exposure in respect of the undrawn balances, that is, the seller's interest, based on the proportions of the seller's and investor's interests of the securitised drawn balances.

(iii) In the case of foreign exchange or interest rate commitments, in accordance with the relevant provisions of subregulation (6) relating to the said commitments.

(B) In the case of qualifying revolving retail exposures, which qualifying revolving retail exposures are not in default, as follows:

RWA = K x 12,5 x EAD

where:

RWA is the relevant risk-weighted asset amount

K is the capital requirement, which capital requirement shall be calculated through the application of the formula specified below

K = LGD × N[(1 - R)^-0.5 × G(PD) + (R / (1 - R))^0.5 × G(0.999)] - PD x LGD

PD is the probability of default, and constitutes a ratio

A bank shall apply a PD ratio equal to the higher of the one-year PD ratio associated with the relevant internal grade to which the pool of exposures is assigned, or 0.03 per cent.

LGD is the loss-given-default ratio as estimated by the bank

R is the correlation, which correlation shall be a constant number equal to 0.04

EAD is the exposure at default, which exposure shall be measured in accordance with the relevant directives relating to the measurement of EAD specified in item (A) above.

(C) In the case of other retail exposures, which other retail exposures are not in default, as follows:

RWA = K x 12,5 x EAD

where:

RWA is the relevant risk-weighted asset amount

K is the capital requirement, which capital requirement shall be calculated through the application of the formula specified below

K = LGD × N[(1 - R)^-0.5 × G(PD) + (R / (1 - R))^0.5 × G(0.999)] - PD x LGD

PD is the probability of default, and constitutes a ratio

A bank shall apply a PD ratio equal to the higher of the one-year PD ratio associated with the relevant internal grade to which the pool of exposures is assigned, or 0.03 per cent.

LGD is the loss-given-default ratio as estimated by the bank

R is the correlation, which correlation shall be calculated through the application of the formula specified below

$$R = 0.03 \times (1 - EXP(-35 \times PD)) / (1 - EXP(-35)) + 0.16 \times [1 - (1 - EXP(-35 \times PD))/(1 - EXP(-35))]$$

EXP is the inverse of the natural logarithm, ln

EAD is the exposure at default, which exposure shall be measured in accordance with the relevant directives relating to the measurement of EAD specified in item (A) above.

(D) In the case of retail exposures that are in default-

(i) the capital requirement (K) shall be equal to the higher amount of zero and the difference between the exposure's LGD and the bank's estimate of expected loss, provided that-

(aa) the LGD estimate in respect of retail exposures secured by residential property shall in no case be less than 10 per cent unless the said exposure is protected by a guarantee obtained from a sovereign;

(bb) the Registrar may amend the said minimum LGD ratio of 10 per cent subject to such conditions as may be specified in writing by the Registrar;

(ii) the bank shall assign to the relevant exposure a PD ratio equal to 100 per cent;

(iii) the relevant risk-weighted exposure amount shall be calculated through the application of the formula specified below.

$$RWA = K \times 12{,}5 \times EAD$$

(v) Equity exposures

A bank shall calculate its risk-weighted assets in respect of equity exposures held in its banking book in accordance with the relevant requirements specified in regulation 31.

(vi) Purchased receivables

(A) A bank shall separately calculate its risk-weighted assets in respect of purchased retail receivables and purchased corporate receivables, provided that the bank shall in the calculation of its risk-weighted exposure in respect of a particular purchased receivable or pool of purchased receivables distinguish between-

(i) the risk of default

When purchased receivables unambiguously belong to one asset class, the bank shall calculate the risk of default relating to the said receivables in accordance with the risk-weight function and risk components applicable to that particular exposure type, provided that the bank shall comply with the relevant requirements in respect of the relevant risk-weight function. For example, when the receivables consist of-

(aa) revolving retail exposures but the bank is unable to comply with the requirements relating to qualifying revolving retail exposures, the bank shall apply the risk-weight function relating to other retail exposures;

(bb) hybrid pools containing a mixture of exposure types, that is, the bank is unable to separate the exposures by type, the bank shall apply the risk-weight function producing the highest capital requirement for the exposures included in the pool of purchased receivables.

(ii) the risk of dilution

In the case of purchased corporate receivables and purchased retail receivables, a bank shall calculate the risk weights relating to the risk of dilution, that is, the risk that a receivable amount may be reduced by way of cash or non-cash credit amounts being made against the receivable account, for example, as a result of the return of goods that were sold or disputes regarding the quality of a product, in accordance with the corporate risk-weight function specified in subparagraph (ii) above, provided that-

(aa) the bank shall estimate the one-year expected loss ratio for dilution risk, expressed as a percentage of the receivable amount, in respect of the pool as a whole or the individual receivables included in the pool on a stand-alone basis, that is, without regard to any assumption of recourse, support or guarantees from the seller or other parties;

(bb) the bank may use relevant external or internal data to estimate the said expected loss ratio;

(cc) the bank shall set the PD estimate equal to the estimated expected loss ratio and the LGD ratio equal to 100 per cent;

(dd) the bank shall apply such a maturity factor as may be specified in writing by the Registrar or, with the prior written approval of the Registrar and provided that the bank manages the risk of dilution in an appropriate manner, a one-year maturity factor;

(ee) when the risk of dilution is immaterial for the purchasing bank, the bank may apply for the approval of the Registrar not to calculate risk weights in respect of the risk of dilution.

(B) Purchased retail receivables

A bank shall calculate the risk estimates of PD and LGD, or expected loss, in respect of default risk relating to purchased retail receivables on a stand-alone basis, that is, without regard to any assumption of recourse or guarantees from the seller or other parties, provided that-

(i) the bank shall comply with the relevant minimum requirements relating to retail exposures specified in paragraphs (b)(v)(D), (b)(vi)(B), (b)(viii)(D), (b)(viii)(E) and (c)(iv) above;

(ii) the bank may use external and internal reference data to estimate the PD ratio and LGD ratio relating to the relevant exposure;

(iii) when the bank complies with the relevant minimum requirements in respect of retail exposure as envisaged in sub-item (i) above, the bank may apply the "top-down" approach envisaged in paragraph (b)(vi)(F) above in order to calculate the said estimates of PD and LGD, provided that the bank shall in addition to the said requirements in respect of retail exposure comply with the relevant requirements relating to the "top-down" approach, specified in paragraph (b)(vi)(F) above.

(C) Purchased corporate receivables

(i) A bank shall calculate the risk-weighted assets relating to default risk of individual obligors in respect of purchased corporate receivables in accordance with the formula and risk components specified in subparagraph (ii) above, which formula and risk components relate to corporate exposure, provided that-

(aa) when the bank is unable to decompose the expected loss ratio into its PD and LGD components, the bank-

(i) shall determine the risk weight in respect of the purchased corporate receivable from the corporate risk-weight function using a LGD ratio of 45 per cent provided that the exposures exclusively consist of senior claims in respect of corporate borrowers;

(ii) shall calculate the PD ratio by dividing the expected loss ratio by the LGD ratio of 45 per cent;

(iii) shall calculate the EAD amount as the outstanding amount minus the capital requirement relating to the risk of dilution, before the bank takes into consideration the effect of any risk mitigation instrument, provided that in the case of a revolving facility the EAD amount shall be equal to the purchased receivable amount **plus** 75 per cent of any undrawn purchased commitments **minus** the capital requirement relating to the risk of dilution;

(iv) shall in all cases other than the exposures already specified in this sub-item (aa), use a PD ratio equal to the expected loss ratio, a LGD ratio equal to 100 per cent and an EAD amount equal to the outstanding amount **minus** the capital requirement relating to the risk of dilution, before the bank takes into consideration the effect of any risk mitigation instrument;

(bb) when the bank is able to estimate the PD ratio in a reliable manner, the bank shall determine the risk weight in respect of the relevant exposure from the corporate risk weight function, based on the relevant requirements relating to LGD and M;

(ii) Subject to the prior written approval of and such conditions as may be specified in writing by the Registrar, a bank may apply the "top-down" approach envisaged in paragraph (b)(vi)(F) above in order to calculate the risk weight relating to default risk in respect of a pool of purchased corporate receivables, provided that-

(aa) the bank's programme in respect of purchased corporate receivables shall comply with the relevant requirements specified in paragraph (b)(vi)(F) above;

(bb) the receivables-

(i) shall be purchased from unrelated, third party sellers, that is, the receivables shall not be originated, either directly or indirectly, by the reporting bank;

(ii) shall be generated on an arm's-length basis between the seller and the relevant obligor;

(cc) the bank-

(i) shall have a claim in respect of all proceeds from the pool of receivables or a relevant *pro-rata* interest in the proceeds, which claim shall exclude any first-loss or second-loss positions, that is, the cash flows arising from the purchased corporate receivables shall be the reporting bank's primary protection against default risk;

(ii) shall estimate the pool's one-year expected loss ratio for default risk, expressed as a percentage of the exposure amount, that is, the total EAD amount due to the bank by all obligors in the pool of purchased receivables;

(iii) shall estimate the expected loss ratio in respect of the purchased receivables on a stand-alone basis, that is, without regard to any assumption of recourse or guarantees from the seller or other parties;

(iv) shall, based on the pool's estimated one-year expected loss ratio for default risk, calculate the risk weight for default risk in accordance with the risk-weight function for corporate exposures specified in subparagraph (ii) above;

(v) shall utilise relevant external and internal data to estimate the required PD ratios and LGD ratios;

(vi) shall follow the directives specified in sub-item (i)(aa) above when the bank is unable to decompose the expected loss ratio into its PD and LGD components;

(dd) the Registrar shall grant approval to apply the "top-down" approach only in exceptional cases when the calculation of the bank's risk-weighted exposure in respect of purchased corporate receivables in accordance with the requirements specified in subparagraph (ii) relating to corporate exposure is likely to place an undue burden on the reporting bank;

(D) Purchase price discounts in respect of purchased receivables

A bank-

(i) shall in accordance with the relevant requirements specified in subregulation (6)(j) above risk weight or deduct from the bank's capital and reserve funds, any purchase price discounts relating to purchased receivables, which purchase price discounts-

(aa) provide first loss protection in respect of the risk of default or dilution;

(bb) will be refunded to the seller,

(ii) shall ignore any purchase price discounts that were granted in respect of purchased corporate or retail receivables, other than purchase price discounts envisaged in sub-item (i), when the bank calculates its risk-weighted exposure or credit impairments relating to expected loss provided that the said discounts shall constitute non refundable amounts, that is, the said discounts shall not be paid or repaid to the relevant seller of the receivable amounts.

(vii) Cash and cash equivalent amounts

A bank shall risk weight all cash and cash equivalent amounts such as gold bullion at zero per cent.

(viii) Securitisation or resecuritisation exposure

A bank shall calculate its risk-weighted assets in respect of a securitisation scheme or resecuritisation exposure in accordance with the relevant requirement specified in paragraphs (e) to (p) below.

(ix) Other exposures

Unless specifically otherwise stated, a bank shall risk weight all exposures other than the exposures specified above at a risk weight of 100 per cent, which risk weight shall be deemed to represent the unexpected loss in respect of the relevant exposure.

(e) Securitisation or resecuritisation exposure: rating-based approach

Based on-

(i) the external rating or inferred rating of a securitisation or resecuritisation exposure;

(ii) whether the external or inferred credit rating represents a long-term or short-term credit rating;

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

(iv) the seniority of a particular position,

a bank shall calculate its risk-weighted assets in respect of a securitisation scheme or resecuritisation exposure by multiplying the relevant amount relating to a particular exposure-

(A) in the case of an exposure with an external long-term credit rating, or when an inferred rating based on an external long-term credit rating is available, by the appropriate risk weights specified in table 12 below:

Table 12

External long-term rating[1]	Securitisation exposure			Resecuritisation exposure	
	Risk weight – senior, granular position[2, 3]	Base risk weight – non-senior, granular[5]	Risk weight for non-granular [4]	Senior[6]	Non-senior
AAA	7%	12%	20%	20%	30%
AA	8%	15%	25%	25%	40%
A+	10%	18%	35%	35%	50%
A	12%	20%		40%	65%
A-	20%	35%		60%	100%
BBB+	35%	50%		100%	150%
BBB	60%	75%		150%	225%
BBB-	100%			200%	350%
BB+	250%			300%	500%
BB	425%			500%	650%
BB-	650%			750%	850%
Below BB- and unrated	1250%, or such imputed percentage that will effectively result in an amount equivalent to a deduction against capital and reserve funds				

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

(B) in the case of an exposure with an external short-term credit rating, or when an inferred rating based on an external short-term credit rating is available, by the appropriate risk weights specified in table 13 below:

Table 13

External short-term rating[1]	Securitisation exposure			Resecuritisation exposure	
	Risk weight – senior, granular position[2, 3]	Base risk weight – non-senior, granular[5]	Risk weight for non-granular[4]	Senior[6]	Non-senior
A-1/P-1	7%	12%	20%	20%	30%
A-2/P-2	12%	20%	35%	40%	65%
A-3/P-3	60%	75%	75%	150%	225%
All other ratings or unrated positions	1250%, or such imputed percentage that will effectively result in an amount equivalent to a deduction against capital and reserve funds				

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

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

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

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

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

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

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

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

(g) Securitisation exposure: internal assessment approach

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

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

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

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

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

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

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

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

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

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

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

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

(B) shall have in place-

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

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

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

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

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

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

(ii) the bank's internal assessment-

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

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

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

(A) losses;

(B) delinquencies;

(C) dilution; and

(D) the turnover rate of receivables;

(iv) the bank-

(A) shall conduct-

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

(aa) past and expected future financial performance;

(bb) current market position;

(cc) expected future competitiveness;

(dd) leverage;

(ee) cash flow;

(ff) interest coverage;

(gg) debt rating;

(ii) a review of the seller's-

(aa) underwriting standards;

(bb) servicing capabilities;

(cc) collection processes;

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

(i) the weighted average credit score;

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

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

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

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

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

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

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

(F) shall regularly-

(i) review its internal assessment process;

(ii) assess the validity of its internal assessments,

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

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

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

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

(v) the bank's internal assessment process-

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

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

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

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

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

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

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

(ii) shall deal comprehensively with-

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

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

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

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

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

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

(B) shall limit-

(i) excess concentration to an individual obligor;

(ii) excess concentration to a geographic area;

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

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

A bank-

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

RWE = K x 12,5

where:

RWE is the relevant risk-weighted exposure amount

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

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

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

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

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

For example, in the case of an originator-

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

Assume that-

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

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

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

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

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

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

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

Step 1

$E^* = \max \{0, [E \times (1 + He) - C \times (1 - Hc - Hfx)]\}$

$E^* = \max \{0, [10\,000 \times (1 + 0) - 8\,000 \times (1 - 0 - 0)]\}$
$= R2\,000$

where:

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

Step 2

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

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

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

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

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

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

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

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

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

Assume that-

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

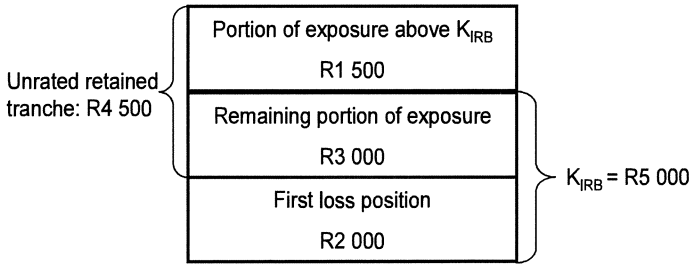
(bb) the K_{IRB} ratio relating to the underlying pool is equal to 5 per cent, that is, a capital requirement of R5 000;

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

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

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

The position may be summarised as follows:



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

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

Step 1

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

where:

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

Step 2

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

That is 0 x R984 = R0

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

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

Step1

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

Step 2

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

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

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

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

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

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

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

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

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

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

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

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

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

(i) 0,0056 x T; or

(ii) (S[L + T] – S[L])

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

where:

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

$$S[L] = \begin{cases} L & \text{when } L \le K_{IRB} \\ K_{IRB} + K[L] - K[K_{IRB}] + (d \cdot K_{IRB}/\omega)(1-e^{\omega \, (K_{IRB} - L)/K_{IRB}}) & \text{when } K_{IRB} < L \end{cases}$$

w
here:

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

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

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

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

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

$$a = g \cdot c$$

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

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

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

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

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

The variable K_{IRB}-

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

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

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

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

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

divided by

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

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

provided that-

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

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

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

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

The variable L-

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

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

divided by

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

(ii) shall be expressed in decimal form;

(iii) shall exclude-

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

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

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

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

(iv) may include-

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

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

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

The variable T-

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

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

divided by

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

(ii) shall include-

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

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

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

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

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

where:

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

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

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

(iii) when-

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

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

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

where:

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

m is the threshold determined by the bank

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

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

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

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

where:

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

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

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

(p) Securitisation exposures subject to an early amortisation mechanism

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

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

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

(iii) K_{IRB}.

(q) Risk weighted exposure equivalent to a deduction against capital and reserve funds

A bank that adopted the foundation IRB approach for the measurement of the bank's exposure to credit risk shall in addition to any relevant exposure and/or amount specified in subregulation (6)(j), risk weight such exposures as may be specified in table 14 below at a risk weighting of 1250 per cent, or such imputed risk weighting that effectively results in a risk weighted exposure amount equivalent to a deduction against capital and reserve funds:

Table 14

Risk weight of 1250 per cent[1]
Any amount relating to expected loss in respect of equity exposures subject to the PD/LGD approach specified in regulation 31

1. **Or such imputed percentage that effectively results in a risk weighted exposure amount equivalent to a deduction against capital and reserve funds**

(12) Credit-risk mitigation: foundation IRB approach

(a) On-balance-sheet netting

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

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

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

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

(b) Collateral

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

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

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

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

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

(ii) *Eligible collateral*

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

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

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

Provided that, irrespective of its credit rating, a resecuritisation instrument shall in no case constitute an eligible instrument for risk mitigation purposes in terms of these Regulations

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

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

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

(aa) the said financial receivables-

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

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

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

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

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

(i) shall be binding on all relevant parties;

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

(iii) shall be legally well founded;

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

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

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

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

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

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

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

(iv) to monitor-

(a) reports relating to ageing;

(b) control over trade documents;

(c) the frequency of audits relating to collateral;

(d) the confirmation of accounts;

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

(f) the analyses in respect of dilution;

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

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

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

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

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

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

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

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

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

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

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

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

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

(iii) shall be realisable within a reasonable timeframe;

(dd) the bank-

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

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

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

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

(v) shall duly document-

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

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

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

(vii) shall monitor on an ongoing basis-

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

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

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

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

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

(i) the location of the asset;

(ii) the use of the asset;

(iii) the age and condition of the asset;

(iv) the asset's planned obsolescence;

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

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

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

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

(iv) Leases that expose the bank to residual risk

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

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

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

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

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

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

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

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

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

(ff) the bank-

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

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

(iii) Risk weighting

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

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

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

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

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

where:

LGD* is the effective loss-given-default ratio

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

E is the relevant current value of the exposure

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

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

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

(i) a fully collateralised portion

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

Ratio = C/E

where:

C is the relevant current value of the collateral received

E is the relevant current value of the exposure

When the said calculated ratio is below the threshold levels denoted **C***, specified in table 15 below, the LGD ratio shall be 45 per cent, that is, the LGD ratio shall be similar to the LGD ratio in respect of an unsecured corporate exposure.

When the said calculated ratio exceeds a higher threshold denoted **C****, that is, the bank has an over-collateralised position, the bank shall, based on relevant type of collateral, assign to the relevant exposure the LGD ratios specified in table 15 below:

Table 15

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

(ii) an uncollateralised portion

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

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

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

(ii) the residual value at 100 per cent.

(c) Pools of collateral

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

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

(A) eligible financial collateral;

(B) receivables;

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

(D) other collateral;

and, when relevant, an unsecured portion.

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

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

(d) Guarantees

(i) Minimum requirements

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

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

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

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

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

(ii) Eligible guarantors

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

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

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

(iii) Risk weighting

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

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

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

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

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

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

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

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

(iv) shall in the case of-

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

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

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

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

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

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

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

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

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

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

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

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

(iii) LGD_g shall be equal to 100 percent;

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

(e) Credit-derivative instruments

(i) Minimum requirements

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

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

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

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

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

(ii) Eligible protection providers

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

(iii) Risk weighting

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

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

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

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

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

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

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

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

(iv) shall in the case of-

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

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

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

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

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

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

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

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

(iii) LGD_g shall be equal to 100 percent;

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

(f) Maturity mismatches

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

(g) Double default

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

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

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

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

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

(ii) Eligible exposure

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

(A) the relevant underlying obligation or exposure constitutes-

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

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

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

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

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

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

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

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

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

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

(ii) a single name guarantee;

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

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

that is, under no circumstances shall protection relating to-

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

(bb) multiple name guarantees;

(cc) index-based products;

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

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

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

be eligible for the double default approach.

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

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

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

(B) The protection provider-

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

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

(bb) an investment company or institution;

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

where:

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

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

and

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

where:

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

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

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

$$K_0 = LGD_g \cdot \left[N\left(\frac{G(PD_o) + \sqrt{\rho_{os}} \cdot G(0.999)}{\sqrt{1-\rho_{os}}} \right) - \sqrt{PD_o} \right] \cdot \frac{1+(M-2.5)\cdot b}{1-1.5\cdot b}$$

where:

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

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

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

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

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

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

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

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

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

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

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

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

(vi) shall risk weight the relevant amounts specified in subregulations (6)(j) and (11)(q) above or deduct the relevant amounts from the bank's common equity tier 1 capital and reserve funds.

(b) *Minimum requirements*

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

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

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

(B) provided a meaningful differentiation of risk;

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

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

(i) credit approval process;

(ii) risk management process;

(iii) internal capital allocation process;

(iv) corporate governance process;

(E) been subjected to appropriate independent review;

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

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

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

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

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

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

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

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

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

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

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

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

(v) Risk quantification

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

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

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

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

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

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

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

For example, when a bank's pool of defaulted exposures consists of 75 defaults where the exposure at default is R10 000 and the bank suffered a complete loss, that is, an LGD ratio of 100%, and 25 defaults where the exposure at default was R1 000 000 but the bank lost only R200 000, that is, an LGD ratio of 20%, the bank's default-weighted average LGD shall be calculated as:

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

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

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

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

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

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

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

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

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

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

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

(xiii) shall in the case of-

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

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

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

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

(i) shall in the case of-

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(vi) Validation of internal estimates

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

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

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

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

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

(c) Categorisation of exposures

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

(d) *Risk-weighted exposure*

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

(A) shall in the case of-

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

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

(iii) equity exposures apply the market-based approach or PD/LGD approach respectively specified in regulations 31(6)(b) and 31(6)(c), provided that the Registrar may direct the bank to use a particular approach;

(B) shall apply the risk-weight functions and risk components in respect of the various exposure categories in accordance with the relevant requirements specified in this subregulation (13) read with subregulation (11)(d) above.

(ii) Corporate, sovereign and bank exposures

A bank that adopted the advanced IRB approach for the measurement of the bank's exposure to credit risk shall calculate its risk-weighted assets in respect of corporate, sovereign or bank exposures through the application of the relevant formulae and risk components specified in subregulation (11)(d)(ii) above, provided that-

(A) when the bank calculates the EAD amount of a particular exposure, the bank may use its own internally estimated credit-conversion factors in respect of the bank's off-balance-sheet exposures, provided that-

(i) when the credit-conversion factor of the said off-balance-sheet exposure is equal to 100 per cent in terms of the provisions of the foundation IRB approach, the bank shall apply the said credit-conversion factor of 100 per cent;

(ii) the bank shall comply with the relevant requirements relating to the use of own estimates of EAD specified in paragraph (b)(v)(D) above.

(B) unless the Registrar granted an exemption from the requirement to calculate an effective maturity in respect of specified small domestic corporate borrowers, which exemption shall be granted only in exceptional cases and shall be subject to such conditions as may be specified in writing by the Registrar, in which case the bank shall apply to the said exempted corporate exposure an average maturity of 2,5 years, the bank shall calculate the effective maturity of each relevant exposure in accordance with the relevant requirements specified below:

(i) In the case of an exposure with an original maturity of more than or equal to one year, which exposure has determinable cash flows, the effective maturity of the exposure shall be equal to the higher of-

(aa) one year; or

(bb) the remaining effective maturity of the exposure, which remaining effective maturity shall be calculated in years through the application of the formula specified below, provided that the calculated maturity shall be limited to five years.

$$M = \sum_t t * CF_t / \sum_t CF_t$$

where:

M is the effective maturity of the exposure

CF_t is the cash flow, that is, principal, interest payments and fees, contractually payable by the obligor in period t

When a bank is unable to calculate the effective maturity of the contracted payments in accordance with the formula specified above, the effective maturity shall be equal to the maximum remaining time, in years, available to the obligor to fully discharge its contractual obligation, that is, principal, interest and fees, in terms of the loan agreement.

(ii) In the case of an exposure with an original maturity of less than one year, other than exposures in terms of which an obligor obtains ongoing finance from the relevant bank, which first-mentioned exposure relates to issued or confirmed short-term self-liquidating letters of credit, a fully collateralised capital market transaction such as an OTC derivative transaction or a margin lending agreement, or a repo-style transaction such as a repurchase or resale agreement or a securities lending or borrowing transaction, the effective maturity of the exposure shall be equal to the higher of-

(aa) one day; or

(bb) the remaining effective maturity of the exposure, calculated in accordance with the formula and conditions specified in sub-item (i)(bb) above.

Provided that-

(i) the relevant documentation of the said exposure or transaction shall make provision for daily remargining;

(ii) the relevant documentation of the said exposure or transaction shall require daily revaluation;

(iii) the relevant documentation of the said exposure or transaction shall make provision for the prompt liquidation or setoff of collateral in the event of default or failure to remargin;

(iv) subject to such conditions as may be specified in writing by the Registrar, in addition to the transactions specified in this sub-item (ii), the Registrar may specify other exposures with an original maturity of less than one year that do not form part of a bank's ongoing financing of an obligor to be subject to the provision of this sub-item (ii).

(iii) In the case of derivative instruments subject to a master netting agreement, the bank shall use the notional amount of each transaction to calculate the weighted average maturity of the transactions, which weighted average maturity shall be used in respect of the explicit maturity adjustment, provided that the effective maturity of the relevant exposure shall be equal to the higher of-

(aa) one year; or

(bb) the remaining effective maturity of the exposure,

provided that the calculated maturity shall be limited to five years.

(iv) In the case of transactions falling within the ambit of sub-item (ii) above, that is, transactions with an original maturity of less than one year that, for example, relate to a fully collateralised capital market transaction or repo-style transaction, which transaction or exposure is subject to a master netting agreement, the bank shall apply the notional amount of each transaction in order to determine the weighted average maturity of the relevant transactions, which weighted average maturity shall be used in respect of the required explicit maturity adjustment, provided that-

(aa) in respect of the relevant transaction type and said average, the bank shall apply a floor equal to the minimum holding period specified in subregulation (9)(b)(xiv)(A);

(bb) when more than one transaction type is contained in the said master netting agreement, the bank shall apply to the said average a floor equal to the highest relevant holding period specified in subregulation (9)(b)(xiv)(A).

(v) In the case of other exposures, that is, exposures not subject to an explicit maturity adjustment, the bank shall assign to the said exposure an effective maturity of 2,5 years unless the exposure is subject to further commitment, that is, a repurchase or resale agreement, in which case the bank shall assign to the said exposure an effective maturity of six months.

(iii) Specialised lending

(A) Subject to the provisions of items (B) and (C) below, a bank shall calculate its risk-weighted exposure in respect of specialised lending in accordance with the relevant requirements relating to corporate exposure specified in subparagraph (ii) above, provided that the bank shall comply with the relevant requirements for the estimation of PD, LGD and EAD specified in subregulation (11)(b)(vi)(A) and in paragraphs (b)(v)(C) and (b)(v)(D) above;

(B) In the case of exposures relating to high-volatility commercial real estate, a bank shall apply the asset correlation formula specified below instead of the asset correlation formula that would otherwise apply to corporate exposure.

$$R = 0.12 \times (1 - EXP(-50 \times PD)) / (1 - EXP(-50)) + 0.30 \times [1 - (1 - EXP(-50 \times PD))/(1 - EXP(-50))]$$

(C) When-

(i) a bank is unable to comply with the prescribed requirements in order to estimate the PD ratio, LGD ratio and EAD amount in terms of the advanced approach for corporate exposure; or

(ii) the Registrar directs a bank to map its internal risk grades to the risk grades specified in subregulation (11)(d)(iii)(C) above,

the bank shall map its internal risk grades in accordance with the relevant requirements specified in subregulation (11)(d)(iii)(C) above, provided that when the bank is unable to comply with the prescribed requirements in order to estimate the LGD ratio and EAD amount in respect of exposure relating to high-volatility commercial real estate in terms of the advanced approach for corporate exposure, the bank shall use the relevant estimates specified in writing by the Registrar in respect of the LGD ratio and EAD amount relating to corporate exposure.

(iv) Retail exposures

A bank that adopted the advanced IRB approach for the measurement of the bank's exposure to credit risk shall calculate its risk-weighted assets in respect of retail exposures through the application of the relevant formulae and risk components specified in subregulation (11)(d)(iv) above.

(v) Equity exposures

A bank shall calculate its risk-weighted exposure in respect of equity investments in accordance with the relevant requirements of this subregulation (13) read with the relevant requirements specified in subregulation (11)(d)(v) above and regulation 31, provided that no investment in a significant minority or majority owned or controlled commercial entity, which investment amounts to less than 15 per cent of the sum of the bank's issued common equity tier 1 capital and reserve funds, additional tier 1 capital and reserve funds and tier 2 capital and reserve funds, as reported in items 41, 65 and 78 of the form BA 700, shall be assigned a risk weight lower than 100 per cent;

(vi) Purchased corporate receivables

A bank shall calculate its risk-weighted exposure in respect of purchased corporate receivables through the application of the relevant formulae and risk components specified in subregulation (11)(d)(ii) relating to corporate exposure, provided that-

(A) the risk weights shall be determined by using the bank's own estimates of PD and LGD as inputs to the corporate risk-weight function;

(B) in the case of-

(i) an exposure other than a revolving facility, the EAD amount shall be equal to the EAD amount determined by the bank, minus the capital requirement relating to the risk of dilution;

(ii) a revolving facility the EAD amount shall be equal to the amount of the purchased receivable **plus** 75 per cent of any undrawn purchased commitments **minus** the capital requirement relating to the risk of dilution, that is, in respect of undrawn purchased commitments, the bank shall not use its own estimate of the EAD amount;

(C) when the purchasing bank is able to estimate in a reliable manner the pool's default-weighted average loss rates given default or average PD, the bank may estimate the other risk component based on an estimate of the expected long-run loss rate, that is, the bank may use an appropriate PD estimate to infer the long-run default-weighted average loss rate given default or use a long-run default-weighted average loss rate given default to infer the appropriate PD ratio, provided that-

(i) the LGD ratio used in order to calculate the bank's risk exposure shall in no case be lower than the long-run default-weighted average loss rate given default;

(ii) the bank shall comply with the relevant requirements specified in paragraph (b)(v)(C) above relating to LGD estimates.

(D) the effective maturity in respect of purchased corporate receivables-

(i) shall in the case of drawn amounts, be equal to the pool's exposure-weighted average effective maturity, calculated in accordance with the relevant provisions of paragraph (d)(ii)(B) above;

(ii) shall in the case of undrawn amounts in respect of a committed purchased facility, be the same value as for drawn amounts provided that the facility shall contain effective covenants, early amortisation triggers or other features that protect the bank against a significant deterioration in the quality of the future receivables that the bank is required to purchase;

(iii) shall in all other cases of undrawn amounts, be equal to the sum of the longest dated potential receivable in terms of the purchase agreement and the remaining maturity of the purchase facility.

(vii) Purchased retail receivables

A bank that adopted the advanced IRB approach for the measurement of the bank's exposure to credit risk shall calculate its risk-weighted assets in respect of purchased retail receivables through the application of the relevant formulae and risk components specified in subregulation (11)(d)(vi) read with the relevant provisions of subregulation (11)(d)(iv) above.

(viii) Securitisation or resecuritisation exposures

A bank shall calculate its risk-weighted assets in respect of a securitisation scheme or resecuritisation exposure in accordance with the relevant requirements specified in subregulations (11)(e) to (11)(p).

(e) *Risk weighted exposure equivalent to a deduction against capital and reserve funds*

A bank that adopted the advanced IRB approach for the measurement of the bank's exposure to credit risk shall risk weight any exposure specified in subregulation (11)(q) in accordance with the relevant requirements specified in the said subregulation (11)(q).

(14) Credit-risk mitigation: advanced IRB approach

(a) On-balance-sheet netting

When a bank that adopted the advanced IRB approach for the measurement of the bank's exposure to credit risk in respect of positions held in the bank's banking book enters into a netting agreement in respect of loans and deposits, the bank may recognise the effect of such a netting agreement when the bank calculates the EAD amount of the relevant exposure, provided that the bank-

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

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

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

(b) Collateral

(i) Unless specifically otherwise provided in this subregulation (14), a bank that adopted the advanced IRB approach for the measurement of the bank's exposure to credit risk shall in addition to the minimum requirements specified below, comply with the relevant requirements specified in subregulation (7)(b)(iii) above.

(ii) Risk weighting

When a bank that adopted the advanced IRB approach for the measurement of the bank's exposure to credit risk obtains collateral in respect of the bank's exposure to corporate institutions, sovereigns or banks the bank may calculate its own LGD ratios in respect of the said protected exposure, provided that-

(A) the bank shall comply with the relevant minimum conditions specified in subregulation (13)(b)(v)(C) above, provided that when the bank is unable to comply with the said minimum requirements relating to the use of the bank's own estimates of LGD, the bank shall calculate the relevant exposure's LGD ratios in accordance with the relevant requirements of the foundation IRB approach specified in subregulation (11)(d)(ii) above;

(B) the bank shall measure the LGD ratio as a percentage of the exposure's EAD amount;

(C) when the bank wishes to recognise the effect of a master netting agreement in respect of repurchase and resale agreements concluded with corporate institutions, sovereigns or banks, the bank shall calculate an adjusted exposure (E*) in accordance with the relevant requirements specified in subregulation (9)(b)(ix) above, which adjusted exposure shall be deemed to represent the exposure's EAD amount, provided that the bank may calculate its own estimate of LGD in respect of the relevant unsecured portion of the relevant exposure;

(D) irrespective of its credit rating, a resecuritisation instrument shall in no case constitute an eligible instrument for risk mitigation purposes in terms of these Regulations.

(c) Guarantees

(i) Minimum requirements

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

(A) shall comply with the relevant requirements specified in subregulations (7)(c)(iv), (11)(b)(v) and (11)(b)(vi) above;

(B) shall assign to all relevant obligors and eligible guarantors a borrower rating and calculate its own estimates of LGD in respect of the bank's various exposures, provided that the bank shall have in place duly specified criteria-

(i) to adjust its borrower grades;

(ii) to adjust its LGD estimates;

(iii) to allocate exposures to relevant retail or receivable pools,

which criteria-

(aa) shall comply with the relevant minimum requirements for assigning borrower or facility ratings specified in subregulation (11)(b) above;

(bb) shall be plausible and intuitive;

(cc) shall take into account all relevant information;

(dd) shall incorporate-

(i) the guarantor's ability and willingness to honour its commitments in terms of the guarantee;

(ii) any correlation between the guarantor's ability to honour its commitments in terms of the guarantee and the obligor's ability to repay any amounts due;

(iii) the effect of any residual risk, such as a currency mismatch between the guarantee and the underlying exposure;

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

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

(ii) Eligible guarantors

A bank that adopted the advanced IRB approach for the recognition of risk mitigation relating to guarantees may recognise the effect of a guarantee obtained from any guarantor, provided that-

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

(B) the bank shall have in place a comprehensive policy and criteria in respect of the types of guarantors acceptable to the bank for risk mitigation purposes;

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

(iii) Risk weighting

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

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

(i) shall reflect the risk mitigation effect of the guarantee by way of an adjustment either to the PD ratio or LGD ratio of the relevant exposure provided that the bank shall apply the adjustments to the PD ratio or LGD ratio in a consistent manner; or

(ii) may reflect the risk mitigation effect of the guarantee in accordance with the relevant requirements relating to the recognition of guarantees in terms of the foundation IRB approach prescribed in subregulation (12)(d) above.

(B) protection in the form of a guarantee in respect of a retail exposure or pool of retail exposures, the bank may reflect the risk reducing effect of the guarantee through an adjustment to the relevant PD ratio or LGD ratio provided that the bank shall apply the relevant adjustments to PD or LGD in a consistent manner in respect of a given type of guarantee, and over time;

(C) protection against dilution risk in respect of purchased receivables, the bank may apply the double default approach specified in paragraph (f) below in order to calculate the required risk-weighted asset amount for dilution risk provided that the bank shall comply with the relevant requirements specified in subregulation (12)(d)(iii)(D).

(d) Credit-derivative instruments

(i) Minimum requirements

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

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

(B) shall in the case of single-name credit-derivative instruments assign to all relevant obligors and eligible protection providers a borrower rating and calculate its own estimates of LGD in respect of its various exposures, provided that the bank shall have in place duly specified criteria-

(i) to adjust its borrower grades;

(ii) to adjust its LGD estimates;

(iii) to allocate exposures to relevant retail or receivable pools,

which criteria-

(aa) shall comply with the relevant minimum requirements for assigning borrower or facility ratings specified in subregulation (11)(b) above;

(bb) shall be plausible and intuitive;

(cc) shall take into account all relevant information;

(dd) shall comprehensively address matters relating to payment, including the impact that payments may have on the level and timing of recoveries;

(ee) shall duly state that the reference asset shall not differ from the underlying asset unless-

(i) the reference asset and the underlying exposure relate to the same obligor, that is, the same legal entity;

(ii) the reference asset ranks *pari passu* with or more junior than the underlying asset in the event of bankruptcy;

(iii) legally effective cross-default clauses, for example, cross-default or cross-acceleration clauses apply;

provided that the terms and conditions of the credit-derivative contract shall at no time contravene the terms and conditions of the underlying asset or reference asset;

(ff) shall incorporate-

(i) the protection provider's ability and willingness to honour its commitments in terms of the protection provided;

(ii) any correlation between the protection provider's ability to honour its commitments in terms of the protection provided and the obligor's ability to repay any amounts due;

(iii) the effects of any residual risk, such as a currency mismatch between the protection and the underlying exposure;

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

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

(ii) Eligible protection providers

A bank that adopted the advanced IRB approach for the recognition of risk mitigation relating to credit-derivative instruments may recognise the effect of protection obtained from any protection provider, provided that-

(A) the credit-derivative instrument shall comply with the relevant minimum requirements specified in subregulation (9)(d)(xi) above;

(B) the bank shall have in place a comprehensive policy and criteria in respect of the types of protection providers acceptable to the bank for risk mitigation purposes.

(iii) Risk weighting

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

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

(i) shall reflect the risk mitigation effect of the protection by way of an adjustment either to the PD ratio or LGD ratio of the relevant exposure provided that the bank shall apply the adjustments to the PD ratio or LGD ratio of the exposure in a consistent manner; or

(ii) may reflect the risk mitigation effect of the protection in accordance with the relevant requirements relating to the recognition of credit-derivative instruments in terms of the foundation IRB approach prescribed in subregulation (12)(e) above.

(B) protection in respect of a retail exposure or pool of retail exposures, the bank may reflect the risk reducing effect of the protection through an adjustment to the relevant PD ratio or LGD ratio provided that the bank shall apply the relevant adjustment to the PD ratio or LGD ratio in a consistent manner in respect of a given type of guarantee, and over time;

(C) protection against dilution risk in respect of purchased receivables, the bank may apply the double default approach specified in paragraph (f) below in order to calculate the required risk-weighted asset amount for dilution risk provided that the bank shall comply with the relevant requirements specified in subregulation (12)(e)(iii)(C).

(e) Maturity mismatches

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

(f) Double default

(i) Minimum requirements

In respect of each eligible exposure as envisaged in subregulation (12)(g)(ii), a bank that obtained the prior written approval of the Registrar to adopt the advanced IRB approach for the measurement of the bank's exposure to credit risk may apply either the substitution approach envisaged in paragraphs (c) and (d) above or the double default approach specified in this paragraph (f), provided that a bank that wishes to apply the double default approach-

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

(B) in respect of eligible exposure shall calculate the relevant risk-weighted exposure amount and any related required amount of capital and reserve funds in accordance with the relevant formulae and requirements specified in subregulation (12)(g) read with the relevant provisions of this paragraph (f);

(C) shall calculate the risk weights and required amount of capital and reserve funds relating to all exposures to a particular obligor, other than eligible exposures specified in this paragraph (f), in accordance with the relevant requirements specified in subregulations (13) and (14), including any risk weight and required amount of capital and reserve funds relating to any unhedged or unprotected portion of an exposure in respect of which the hedged or protected portion is subject to the provisions of this paragraph (f);

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

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

In respect of any hedged or protected exposure subject to the double default approach, the reporting bank shall calculate its risk-weighted exposure and related required amount of capital and reserve funds through the application of the relevant formulae specified in subregulation (12)(g), provided that-

(A) when estimating any of the required LGD ratios the bank may recognise collateral posted exclusively against the relevant exposure or credit protection, provided that the bank shall in all cases comply with the relevant minimum requirements relating to LGD, specified in subregulation (13)(b)(v);

(B) the bank shall in no case apply a principle of double recovery when the bank estimates any required LGD ratio.

(15) Counterparty credit risk and related matters

(a) Subject to the provisions of paragraphs (b) and (c) below, for the measurement of a bank's exposure amount or EAD, risk-weighted exposure and related required amount of capital and reserve funds in respect of instruments, contracts or transactions that expose the reporting bank to counterparty credit risk, the bank may-

(i) at the discretion of the reporting bank, use the current exposure method specified in subregulation (17) below, which current exposure method shall be available only for the measurement of the reporting bank's exposure to counterparty credit risk arising from OTC derivative instruments, that is, exposure to credit risk arising from securities financing transactions shall be calculated, amongst other things, in accordance with the relevant requirements specified in subregulations (8) and (9), irrespective whether the said OTC derivative transaction, contract or agreement is recorded in the reporting bank's banking book or trading book;

(ii) at the discretion of the bank, use the standardised method specified in subregulation (18) below, which standardised method-

(A) shall be available only for the measurement of the reporting bank's exposure to counterparty credit risk arising from OTC derivative instruments, that is, exposure to credit risk arising from securities financing transactions shall be calculated, amongst other things, in accordance with the relevant requirements specified in subregulations (8) and (9), irrespective whether the said OTC derivative transaction, contract or agreement is recorded in the reporting bank's banking book or trading book;

(B) is more risk sensitive than the current exposure method,

Provided that-

(i) when the bank wishes to adopt the standardised method the bank shall in writing inform the Registrar of its decision, and comply with such further conditions as may be specified in writing by the Registrar;

(ii) when the standardised method, in the Registrar's discretion, does not duly capture the risk inherent in the bank's relevant transactions, the Registrar may require the bank to apply the current exposure method or the standardised method on a transaction-by-transaction basis, that is, without recognising any effect of netting.

(iii) subject to the prior written approval of and such further conditions as may be specified in writing by the Registrar in addition to the requirements specified in subregulation (19) below, use the internal model method specified in the said subregulation (19), provided that-

(A) only under exceptional circumstances or in respect of immaterial exposures, shall a bank that obtained approval from the Registrar to adopt the internal model method be allowed to revert to either the current exposure method or standardised method for all or part of its exposure, provided that the bank shall in all cases demonstrate to the satisfaction of the Registrar that the said reversion to a less sophisticated method does not lead to arbitrage in respect of the bank's required amount of capital and reserve funds;

(B) the internal model method may be applied by a bank that adopted the standardised approach or the IRB approach for the measurement of the bank's other exposures to credit risk;

(C) the internal model method shall be applied to all relevant exposures in a particular category of exposures that are subject to counterparty credit risk, except exposures that arise from long settlement transactions;

(D) the internal model method may be applied to measure the bank's exposure or EAD amount relating to-

(i) only OTC derivative instruments;

(ii) only securities financing transactions; or

(iii) OTC derivative instruments and securities financing transactions,

irrespective whether the said transaction, contract or agreement is recorded in the reporting bank's banking book or trading book.

(iv) subject to the prior written approval of and such conditions as may be specified in writing by the Registrar, use a combination of the aforementioned methods, provided that-

(A) subject to the provisions of item (D) below, the said approval of the Registrar shall be granted only in exceptional cases and only during the initial implementation period of the internal model method;

(B) a bank that wishes to apply such a combination of methods shall together with its application to obtain the approval of the Registrar to adopt the internal model method submit a plan to include all material counterparty exposures relating to a particular category of instruments or transactions in the said internal model method;

(C) in respect of all OTC derivative transactions and all long settlement transactions in respect of which the reporting bank has not obtained approval from the Registrar to use the internal model method, the bank shall apply either the standardised method or the current exposure method;

(D) the Registrar may allow a combination of the current exposure method and the standardised method on a permanent basis within a banking group.

(b) Irrespective of the method adopted by the reporting bank for the measurement of-

(i) the bank's exposure to counterparty credit risk, when the bank purchases credit derivative protection against a banking book exposure or against an exposure to counterparty credit risk, the bank shall in respect of the hedged exposure calculate its required amount of capital and reserve funds in accordance with the relevant requirements relating to credit derivative instruments specified in subregulations (9)(d), (12)(e), (12)(g), (14)(d) and (14)(f), that is, in accordance with the relevant substitution or double default requirements;

(ii) the bank's exposure to counterparty credit risk arising from OTC derivative instruments or securities financing transactions, the bank may adopt any of the three methods envisaged in paragraph (a) above for the measurement of the bank's exposure or EAD arising from long settlement transactions, provided that-

(A) the bank shall continuously comply with the relevant requirements specified in these Regulations or by the Registrar in respect of the selected method;

(B) notwithstanding the materiality of a long settlement transaction or position, in order to calculate the bank's required amount of capital and reserve funds relating to the said long settlement transaction or position, a bank that obtained the approval of the Registrar to adopt the IRB approach for the measurement of the bank's exposure to credit risk may apply the risk weights specified in the standardised approach, in subregulation (8);

(iii) the bank's exposure to counterparty credit risk, the exposure amount or EAD relating to a particular counterparty shall be equal to the sum of the relevant exposure amounts or EADs calculated in respect of each relevant netting set relating to the said counterparty, provided that-

(A) for purposes of calculating the relevant amount of required capital and reserve funds for default risk in terms of the relevant requirements specified in this subregulation (15) read with the relevant requirements specified in subregulations (16) to (19), the relevant outstanding exposure or EAD amount shall be net of any incurred credit valuation adjustment (CVA) losses;

(B) unless specifically otherwise provided in this subregulation (15) read with the relevant requirements specified in subregulations (16) to (19), the relevant outstanding exposure or EAD amount for a given OTC derivative counterparty shall be the higher of-

(i) zero; or

(ii) the difference between the sum of all relevant exposure amounts or EADs across all relevant netting sets with the counterparty and the credit valuation adjustment (CVA) for that counterparty which has already been recognised by the bank as an incurred write-down or incurred CVA loss, which CVA loss shall be calculated without taking into account any offsetting debit valuation adjustments related to changes in the fair value of liabilities that are due to a change in the bank's own credit risk which have been deducted from capital, that is-

(aa) the incurred CVA loss deduced from exposure to determine outstanding exposure or EAD shall be the CVA loss gross of all relevant debit value adjustments related to changes in the fair value of liabilities that are due to a change in the bank's own credit risk which have been separately deducted from capital;

(bb) to the extent that the aforesaid debit value adjustments have not been separately deducted from the bank's capital, the incurred CVA loss used to determine outstanding exposure or EAD shall be net of such debit value adjustments;

(C) the aforesaid reduction of exposure or EAD by incurred CVA losses shall not apply in the calculation of the relevant amount of required capital and reserve funds for CVA risk;

(iv) the bank's exposure to counterparty credit risk, a bank shall, in addition to any capital requirement for default risk related to counterparty credit risk, determine the relevant amount of required capital and reserve funds to cover risk related to mark-to-market losses on the bank's expected exposure to counterparty risk, which losses shall for purposes of these Regulations be referred to as CVA risk or CVA losses in respect of OTC derivatives, provided that-

(A) a bank, other than a bank that obtained the approval of the Registrar for the use of the internal model method for the measurement of the bank's exposure to counterparty credit risk and the internal models approach for the measurement of specific risk as part of a bank's exposure to market risk, shall calculate-

(i) the relevant required amount of capital for default risk in accordance with the relevant requirements and formulae specified in this subregulation (15) read with the relevant requirements specified in subregulations (16) to (18);

(ii) the relevant additional required amount of capital for CVA risk in accordance with the relevant requirements and formula specified in paragraph (f) below;

(B) a bank that obtained the approval of the Registrar for the use of the internal model method for the measurement of the bank's exposure to counterparty credit risk and the internal models approach for the measurement of specific risk as part of a bank's exposure to market risk, shall calculate the relevant additional required amount of capital for CVA risk in accordance with the relevant requirements and formula specified in subregulation (19)(h)(i) below, which approach shall be regarded as the advanced approach for the calculation of the relevant required amount of capital and reserve funds for CVA risk, capturing both general and specific credit spread risk, including stressed value-at-risk (VaR) but not incremental risk, and which formula shall form the basis of all relevant inputs into the bank's approved VaR model for bonds, that is, when the bank's approved VaR model is based on full repricing, the bank shall use the formula specified in subregulation (19)(h)(i) for its relevant calculations, provided that-

(i) all relevant VaR amounts shall be calculated in accordance with the relevant quantitative requirements specified in regulation 28(8) of these Regulations and shall be the sum of the non-stressed VaR component and the stressed VaR component, provided that when calculating-

(aa) the non-stressed VaR component, the bank shall use current parameter calibrations for expected exposure;

(bb) the stressed VaR component, the bank shall use future counterparty expected exposure (EE) profiles in accordance with the stressed exposure parameter calibrations specified in these Regulations, including the relevant requirements specified in regulation 39(12), provided that the period of stress for the credit spread parameters shall be the most severe one-year stress period contained within the three-year stress period used for the bank's exposure parameters,

Provided that the three-times multiplier inherent in the calculation of VaR and stressed VaR shall also apply in respect of the aforesaid calculations;

(ii) when the bank's approved VaR model is based on credit spread sensitivities for specific tenors, the bank shall base each relevant credit spread sensitivity on the formula specified in subregulation (19)(h)(ii)(A);

(iii) when the bank's approved VaR model uses credit spread sensitivities to parallel shifts in credit spreads, which shall for purposes of these Regulations be referred to as regulatory CS01, the bank shall use the formula specified in subregulation (19)(h)(ii)(B);

(iv) when the bank's approved VaR model uses second-order sensitivities to shifts in credit spreads, that is, spread gamma, the gammas shall be calculated based on the formula specified in subregulation (19)(h)(i);

(v) a bank that uses the short cut method for collateralised OTC derivatives envisaged in subregulation (19)(e)(ii) shall calculate the relevant capital requirement for CVA risk in accordance with the requirements specified in subregulation (19)(h)(i), assuming a constant EE profile, that is, a constant expected exposure profile, where EE shall be set equal to the effective expected positive exposure of the shortcut method for a maturity equal to the maximum of-

(aa) half of the longest maturity occurring in the netting set;

and

(bb) the notional weighted average maturity of all relevant transactions in the netting set;

(vi) a bank that obtained the approval of the Registrar for the use of the internal model method for the majority of its business, but the bank uses the Current Exposure Method (CEM) or Standardised Method (SM) for certain smaller portfolios, which bank also obtained the approval of the Registrar for the use of the internal models approach for the measurement of specific risk as part of a bank's exposure to market risk, shall include these non-internal-model-method netting sets into the CVA risk capital requirements in accordance with the relevant requirements specified in subregulation (19)(h)(i), provided that-

(aa) the Registrar may instruct the bank in writing to use the method envisaged in paragraph (f) below for the relevant portfolios specified by the Registrar;

(bb) any relevant non-internal-model-method netting set shall be included into the advanced CVA risk capital requirement assuming a constant EE profile, where EE shall be set equal to the EAD as calculated in terms of the CEM or SM for a maturity equal to the maximum of-

(i) half of the longest maturity occurring in the netting set;

and

(ii) the notional weighted average maturity of all relevant transactions in the netting set,

(cc) when a bank's internal model does not produce an expected exposure profile, the bank shall in the calculation of the relevant required amount apply the same approach as set out in sub-item (bb) above;

(vii) when the bank's approved market risk VaR model does not appropriately reflect the risk of credit spread changes, because the bank's VaR model, for example, does not appropriately reflect the specific risk of debt instruments issued by a particular counterparty, the bank shall not use the advanced approach for CVA envisaged in subregulation (19)(h)(i) for those relevant exposures, and the bank shall instead determine the required amount of capital for CVA risk through the application of the standardised method specified in paragraph (f) below, that is, the bank shall include in its advanced approach calculations only those exposures to counterparties for which the bank obtained approval from the Registrar to apply its internal model in respect of specific risk for relevant exposures arising from debt instruments;

(viii) the additional required amount of capital for CVA risk shall be a standalone market risk requirement, calculated on the set of CVAs envisaged in this item (B) read with the relevant requirements specified in subregulation (19)(h)(i) for all relevant collateralised and uncollateralised OTC derivative counterparties, together with eligible CVA hedges, provided that, unless expressly otherwise provided in these Regulations, within the standalone required amount of capital for CVA risk, the bank shall not apply any offset against any other instrument on the bank's balance sheet;

(C) only hedges used by the bank to mitigate its exposure to CVA risk, and managed as such by the bank, shall be eligible for inclusion in the calculation of the bank's relevant required amount of capital for CVA risk, irrespective whether the relevant required amount is calculated in terms of the standardised or VaR approach, provided that-

(i) the only hedges eligible for inclusion in the calculation of the bank's required amount of capital for CVA risk in terms of the standardised or VaR approach shall be single-name credit default swaps (CDSs), single-name contingent CDSs, other equivalent hedging instruments referencing the counterparty directly, and index CDSs, that is, counterparty risk hedges other than the instruments specified above shall be excluded from the calculation of the bank's relevant required amount of capital for CVA risk;

(ii) in the case of index CDSs-

(aa) the basis between any individual counterparty spread and the spreads of index CDS hedges shall in all relevant cases be reflected in the bank's VaR amount, even when a proxy is used for the spread of a counterparty, since idiosyncratic basis still needs to be reflected in such situations, provided that for all counterparties with no available spread, the bank shall use reasonable basis time series out of a representative bucket of similar names for which a spread is available;

(bb) when the envisaged basis is not reflected to the satisfaction of the Registrar, the bank shall include in its relevant VaR amount only 50 per cent of the notional amount of the index hedge;

(iii) no tranched or nth-to-default CDS shall constitute an eligible CVA hedge;

(iv) any eligible hedge included in the relevant required amount of capital for CVA risk shall be removed from the bank's relevant calculation of required capital and reserve funds for market risk;

(v) when a CDS referencing an issuer is in the bank's inventory, and that issuer also happens to be an OTC counterparty but the CDS is not managed by the bank as a hedge of CVA risk, that CDS shall not be eligible to offset the CVA within the bank's relevant standalone VaR calculation of the required amount of capital for CVA risk;

(D) the bank shall exclude from the aforesaid additional required amount of capital for CVA risk-

(i) all relevant transactions with intragroup banks or other formally regulated intragroup financial entities that are subject to capital requirements similar or equivalent to these Regulations, which banks or entities are included in the consolidated amounts calculated in accordance with the relevant requirements specified in these Regulations in respect of consolidated supervision, provided that the Registrar may in writing instruct a bank to include in its relevant calculations for CVA risk all such transactions with intragroup banks or other formally regulated intragroup financial entities as may be specified in writing by the Registrar;

(ii) transactions with a central counterparty (CCP); and

(iii) securities financing transactions (SFT), provided that when SFT exposures are deemed by the Registrar to be material, the Registrar may in writing instruct a bank to include in its relevant calculations CVA loss exposures arising from SFT transactions;

(E) the bank shall calculate the relevant aggregate amount of required capital and reserve funds for counterparty credit risk and credit valuation adjustments in accordance with the relevant requirements specified in paragraph (g) below;

(v) the bank's exposure to counterparty credit risk arising from OTC derivative instruments or securities financing transactions, the bank shall calculate its required amount of capital and reserve funds relating to any delivery-versus-payment transaction and any non-delivery-versus-payment or free-delivery transaction in accordance with the relevant requirements specified in subregulation (20) below.

(c) Exposure to central counterparties and related matters

A bank shall calculate its exposure to central counterparties arising from any relevant OTC derivative instrument, exchange traded derivative instrument or securities financing transaction, and the bank's related required amount of capital and reserve funds, in accordance with the relevant requirements specified in this paragraph (c), provided that-

(i) any relevant exposures arising from the settlement of cash transactions in respect of equities, fixed income, spot FX or spot commodities shall be calculated in accordance with the relevant requirements specified in subregulation (20);

(ii) when the clearing member-to-client leg of any relevant exchange traded derivative transaction is conducted in terms of a bilateral agreement, both the client bank and the relevant clearing member shall calculate the relevant exposure amount and required amount of capital and reserve funds in accordance with the relevant requirements related to an OTC derivative instrument;

(iii) a bank shall ensure that it continously maintains sufficient capital and reserve funds for all relevant exposures related to counterparty credit risk, including in respect of any relevant exposure to a qualifying central counterparty, that is, the bank shall, for example, consider whether it needs to maintain capital in excess of the minimum required capital and reserve funds specified in terms of the provisions of these Regulations when the bank's relevant transactions with a central counterparty give rise to more risky exposures than what is envisaged in these Regulations or when the bank is uncertain whether or not the relevant counterparty may indeed be regarded as a qualifying central counterparty;

(iv) when a bank acts as a clearing member, the bank shall continously assess through appropriate scenario analysis and stress testing whether the level of capital held against the bank's exposures to a central counterparty adequately addresses the risks inherent in the relevant transactions, provided that the bank's assessment shall, for example, include all relevant potential future exposure or contingent exposure resulting from future drawings on default fund commitments, and/or from secondary commitments to take over or replace offsetting transactions from clients of another clearing member when that clearing member defaults or becomes insolvent;

(v) the bank shall on a regular basis monitor and report to its senior management and the appropriate committee of the bank's board of directors, all relevant exposures to central counterparties, including all relevant exposures arising from trading through a central counterparty and exposures arising from central counterparty membership obligations, such as default fund contributions;

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(vi) when a bank conducts business with a qualifying central counterparty, the bank shall calculate its relevant exposure and the related required amount of capital and reserve funds in accordance with the relevant requirements specified in paragraph (d) below, provided that, subject to the prior written approval of and such conditions as may be specified in writing by the Registrar, when a central counterparty no longer meets the relevant requirements related to a qualifying central counterparty, the bank may continue to treat all relevant transactions with that counterparty in accordance with the relevant requirements specified in paragraph (d) below, for a maximum period of up to three months following the date on which that counterparty no longer meets the said requirements, whereafter the bank shall calculate its relevant exposure and the related required amount of capital and reserve funds in accordance with the relevant requirements specified in paragraph (e) below;

(vii) when a bank conducts business with a non-qualifying central counterparty, the bank shall calculate its relevant exposure and the related required amount of capital and reserve funds in accordance with the relevant requirements specified in paragraph (e) below.

(d) Exposures to qualifying central counterparties

(i) Subject to the provisions of subparagraph (v) below, when a bank acts as a clearing member of a qualifying central counterparty for its own purposes, the bank shall in respect of all relevant OTC derivative instruments, exchange traded derivative instruments and securities financing transactions apply a risk weight of 2 per cent to the bank's relevant trade exposure to the qualifying central counterparty, provided that-

(A) when the said bank acting as a clearing member offers clearing services to clients, the 2 per cent risk weight shall also apply to the clearing member's trade exposure to the qualifying central counterparty that arises when the clearing member is obligated to reimburse the client for any losses suffered due to changes in the value of its transactions in the event that the qualifying central counterparty defaults;

(B) the bank shall calculate the relevant exposure amount for such trade exposure in accordance with the relevant requirements related to the current exposure method, standardised method or internal model method, respectively specified in subregulations (17) to (19) below, read with the relevant requirements specified in subregulation (9) in respect of collateralised exposure, provided that in the case of banks that apply the internal model method the 20-day floor for the margin period of risk will not apply, provided that the relevant netting set does not contain illiquid collateral or exotic trades and provided there are no disputed trades;

(C) when settlement is legally enforceable on a net basis in an event of default and regardless of whether the counterparty is insolvent or bankrupt, the bank may calculate the relevant total replacement cost of all contracts relevant to the trade exposure on a net replacement cost basis, provided that the relevant close-out netting sets-

(i) shall in the case of all relevant repo-style transactions comply with all the relevant requirements specified in subregulation (9)(b)(xvi);

(ii) shall in the case of all relevant transactions in derivative instruments comply with all the relevant requirements specified in subregulation (17)(b);

(iii) shall in all relevant cases of cross-product netting comply with all the relevant requirements specified in subregulation (19)(d),

Provided that when a bank is unable to demonstrate to the satisfaction of the Registrar that all relevant netting agreements meet the aforesaid requirements, the bank shall regard each relevant single transaction as a netting set of its own for purposes of calculating its relevant trade exposure amount.

(ii) Without derogating from the provisions of subparagraph (v) below, a bank that acts as a clearing member shall in all relevant cases calculate its relevant exposures, including any potential CVA risk exposure, to clients as bilateral trades, irrespective whether the clearing member guarantees the trade or acts as an intermediary between the client and the relevant qualifying central counterparty, provided that, in order to recognise the shorter close-out period for cleared transactions-

(A) a bank that adopted the internal model method and that acts as a clearing member may calculate its relevant exposure amount to clients and the related required amount of capital and reserve funds by applying a margin period of risk of no less than 5 days;

(B) a bank that adopted the current exposure method or standardised method may multiply the relevant exposure amount or EAD with a scaling factor of no less than 0.71, provided that when the margin period of risk is greater than 5 days the relevant scaling factor shall be as follows:

Margin period of risk	Scaling factor
6 days	0.77
7 days	0.84
8 days	0.89
9 days	0.95
10 days	1.00

(iii) When a bank is a client of a clearing member, and the bank enters into a transaction with the said clearing member acting as a financial intermediary, that is, the clearing member completes an offsetting transaction with a qualifying central counterparty, the bank's exposures to the clearing member shall be calculated in accordance with the relevant requirements specified in subparagraph (i) above, provided that-

(A) the relevant qualifying central counterparty shall identify the relevant offsetting transactions as client transactions and the qualifying central counterparty and/or the clearing member, as the case may be, shall hold collateral to support the relevant transactions, in a manner that prevents any losses to the client due to-

(i) the default or insolvency of the clearing member;

(ii) the default or insolvency of the clearing member's other clients; and

(iii) the joint default or insolvency of the clearing member and any of its other clients.

That is, upon the insolvency of the clearing member, there shall be no legal impediment, other than the need to obtain a court order to which the client shall be entitled, to the transfer of the collateral belonging to clients of a defaulting clearing member to the qualifying central counterparty, to one or more other surviving clearing members or to the client or the client's nominee.

(B) when requested, the bank shall provide the Registrar with an independent, written and reasoned legal opinion that concludes that, in the event of legal challenge, the relevant courts and administrative authorities would find that the client would bear no losses on account of the insolvency of an intermediary clearing member or of any other clients of such intermediary in terms of-

(i) the law of the jurisdiction(s) of the client, clearing member and qualifying central counterparty;

(ii) the law of the jurisdiction(s) in which the branch is located when the foreign branch of the client, clearing member or qualifying central counterparty is involved;

(iii) the law that governs the individual transactions and collateral; and

(iv) the law that governs any contract or agreement necessary to meet the respective requirements specified in these items (A) and (B);

(C) relevant laws, regulation, rules, contractual, or administrative arrangements shall provide that the offsetting transactions with the defaulted or insolvent clearing member are highly likely to continue to be indirectly transacted through the qualifying central counterparty, or by the qualifying central counterparty, should the clearing member default or become insolvent, and in which case the client positions and collateral with the qualifying central counterparty shall be transferred at market value unless the client requests to close out the position at market value;

(D) when all the conditions and requirements specified in the preceding items (A) to (C) are met, but the client is not protected from losses in the case that the clearing member and another client of the clearing member jointly default or become jointly insolvent, the bank shall apply a risk weight of 4 per cent to the relevant client's exposure to the clearing member;

(E) when the bank is a client of the clearing member and the conditions and requirements envisaged in items (A) to (D) above are not met, the bank shall calculate all relevant exposures and the related required amount of capital and reserve funds, including any relevant CVA risk exposure, to the relevant clearing member on a bilateral trade basis.

(iv) When a bank that is a client of a clearing member enters into a transaction with a qualifying central counterparty, and the clearing member guarantees the bank's performance, the bank's exposures to the qualifying central counterparty shall be calculated in accordance with the relevant requirements specified in subparagraph (i) above, provided that-

(A) the relevant qualifying central counterparty shall identify the relevant offsetting transactions as client transactions and the qualifying central counterparty and/or the clearing member, as the case may be, shall hold collateral to support the relevant transactions, in a manner that prevents any losses to the client due to-

(i) the default or insolvency of the clearing member;

(ii) the default or insolvency of the clearing member's other clients; and

(iii) the joint default or insolvency of the clearing member and any of its other clients.

That is, upon the insolvency of the clearing member, there shall be no legal impediment, other than the need to obtain a court order to which the client shall be entitled, to the transfer of the collateral belonging to clients of a defaulting clearing member to the qualifying central counterparty, to one or more other surviving clearing members or to the client or the client's nominee.

(B) when requested, the bank shall provide the Registrar with an independent, written and reasoned legal opinion that concludes that, in the event of legal challenge, the relevant courts and administrative authorities would find that the client would bear no losses on account of the insolvency of an intermediary clearing member or of any other clients of such intermediary in terms of-

(i) the law of the jurisdiction(s) of the client, clearing member and qualifying central counterparty;

(ii) the law of the jurisdiction(s) in which the branch is located when the foreign branch of the client, clearing member or qualifying central counterparty is involved;

(iii) the law that governs the individual transactions and collateral; and

(iv) the law that governs any contract or agreement necessary to meet the respective requirements specified in these items (A) and (B);

(C) relevant laws, regulation, rules, contractual, or administrative arrangements shall provide that the offsetting transactions with the defaulted or insolvent clearing member are highly likely to continue to be indirectly transacted through the qualifying central counterparty, or by the qualifying central counterparty, should the clearing member default or become insolvent, and in which case the client positions and collateral with the qualifying central counterparty shall be transferred at market value unless the client requests to close out the position at market value;

(D) when all the conditions and requirements specified in the preceding items (A) to (C) are met, but the client is not protected from losses in the case that the clearing member and another client of the clearing member jointly default or become jointly insolvent, the bank shall apply a risk weight of 4 per cent to the relevant client's exposure to the clearing member;

(E) when the bank is a client of the clearing member and the conditions and requirements envisaged in items (A) to (D) above are not met, the bank shall calculate all relevant exposures and the related required amount of capital and reserve funds, including any relevant CVA risk exposure, to the relevant clearing member on a bilateral trade basis.

(v) In all relevant cases, any asset or collateral posted or provided shall, from the perspective of the bank posting or providing such collateral, be assigned the relevant risk weight that otherwise applies to such asset or collateral in terms of the relevant provisions or requirements specified in these Regulations, regardless of the fact that such asset has been posted or provided as collateral, provided that-

(A) when an asset or collateral of a clearing member or client is posted with or provided to a qualifying central counterparty or a clearing member, and the asset or collateral is not held in a bankruptcy remote manner, the bank posting or providing such asset or collateral shall also recognise the related credit risk, based upon the asset or collateral being exposed to risk of loss that is based on the creditworthiness of the entity or person holding such asset or collateral, provided that-

(i) when the entity or person holding such asset or collateral is the qualifying central counterparty, a risk weight of 2 per cent shall apply to collateral included in the definition of trade exposure;

(ii) the relevant risk weight of the qualifying central counterparty shall apply to assets or collateral posted or provided for any purpose other than the situation provided for in sub-item (i) above;

(B) collateral posted or provided by a clearing member, including cash, securities, other pledged assets, and excess initial or variation margin, which is often being referred to as overcollateralisation, that is held by a custodian, and is bankruptcy remote from the relevant qualifying central counterparty, shall not be subject to a capital requirement for counterparty credit risk exposure to such bankruptcy remote custodian, provided that for purposes of this item (B), custodian includes a trustee, agent, pledgee, secured creditor or any other person that holds property in a manner that does not give such person a beneficial interest in such property and will not result in such property being subject to legally-enforceable claims by such person's creditors, or to a court-ordered stay of the return of such property, should such person become insolvent or bankrupt;

(C) collateral posted by a client, that is held by a custodian, and is bankruptcy remote from the relevant qualifying central counterparty, the clearing member and other clients, shall not be subject to a capital requirement for counterparty credit risk, provided that when the collateral is held at the qualifying central counterparty on a client's behalf and is not held on a bankruptcy remote basis-

(i) a risk weight of 2 per cent shall apply to that collateral when all the relevant conditions and requirements envisaged in paragraph (d)(iii)(A) to (d)(iii)(C) above are met;

(ii) a risk weight of 4 per cent shall apply to that collateral when the relevant conditions envisaged in paragraph (d)(iii)(D) apply;

(vi) When a default fund is shared between products or types of business with settlement risk only, such as in the case of equities and bonds, and products or types of business which give rise to counterparty credit risk, such as OTC derivative instruments, exchange traded derivative instruments or securities financing transactions, the risk weight determined in accordance with the relevant formulae and methodology specified in subparagraph (vii) or (viii) below shall be assigned to all relevant default fund contributions, without any apportionment to different classes or types of business or products, provided that-

(A) when default fund contributions from clearing members are segregated by product types and only accessible for specific product types, the relevant capital requirements for those default fund exposures shall be determined for each relevant product giving rise to counterparty credit risk in accordance with the formulae and methodology specified in subparagraphs (vii) and (viii) below;

(B) when the relevant qualifying central counterparty's prefunded own resources are shared among product types, the qualifying central counterparty shall allocate those funds to each of the relevant calculations, in proportion to the respective product specific exposure or EAD amount;

(C) a bank acting as a clearing member shall calculate its relevant required amount of capital and reserve funds related to exposures arising from default fund contributions to a qualifying central counterparty in accordance with-

(i) the formulae and methodology related to method 1, set out in subparagraph (vii) below; or

(ii) the formulae and methodology related to method 2, set out in subparagraph (viii) below.

(vii) *Method 1: calculations in respect of default fund exposure*

(A) Based on the risk sensitive formulae specified in item (B) below, which formulae incorporate-

(i) the size and quality of a qualifying central counterparty's financial resources;

(ii) the counterparty credit risk exposures of such qualifying central counterparty; and

(iii) the application of such financial resources via the qualifying central counterparty's loss bearing waterfall, in the case of one or more clearing member defaults,

a bank that acts as a clearing member may calculate a risk weight for its default fund contributions, provided that the bank's risk sensitive capital requirement for its default fund contribution, denoted by K_{CMi}, shall be calculated using the formulae and methodology specified in item (B) below, which calculation-

(aa) may also be performed by any relevant qualifying central counterparty, supervisor or other person with access to the relevant required data;

(bb) shall be made only when the relevant conditions and requirements specified in item (E) below, are met.

(B) Any person that wishes to calculate the capital requirement and related risk weight shall firstly calculate the qualifying central counterparty's hypothetical capital requirement due to its counterparty credit risk exposures to all of its relevant clearing members, through the application of the formula specified below:

$$K_{CCP} = \sum_{\substack{clearing \\ members\, i}} max\left(EBRM_i - IM_i - DF_i; 0\right) \cdot RW \cdot Capital\ ratio$$

where:

K_{CCP} is the hypothetical capital requirement for a qualifying central counterparty, calculated for the sole purpose of determining the capitalisation of clearing member default fund contributions, that is, K_{CCP} does not represent the actual capital requirements for a qualifying central counterparty, which may be determined by the relevant qualifying central counterparty and/or its relevant supervisor

RW is a minimum risk weight of 20 per cent, or such higher risk weight as may be specified in writing by the Registrar when, for example, the clearing members in a qualifying central counterparty are not highly rated

Capital ratio shall be 8 per cent

$\max(EBRM_i - IM_i - DF_i; 0)$

is the exposure amount of the qualifying central counterparty to clearing member 'i', with all values relating to the valuation at the end of the day before the margin called on the final margin call of that day is exchanged, and

$EBRM_i$ is the exposure value to clearing member 'i' before the application of risk mitigation in terms of the current exposure method for derivative instruments or the comprehensive approach envisaged in subregulation (9)(b), or for securities financing transactions as envisaged in subregulation (9)(b)(xvi), and where, for purposes of this calculation, variation margin that has been exchanged (before the margin called on the final margin call of that day) enters into the mark-to-market value of the transactions

IM_i is the initial margin collateral posted by the clearing member with the qualifying central counterparty

DF_i is the prefunded default fund contribution by the clearing member that will be applied upon such clearing member's default, either along with or immediately following such member's initial margin, to reduce the qualifying central counterparty loss

and in respect of which first step-

(i) each relevant exposure amount shall be the counterparty credit risk exposure amount that a qualifying central counterparty has to a clearing member, calculated as a bilateral trade exposure for OTC derivatives and exchange traded derivatives, either in terms of the relevant requirements related to the current exposure method, or the standard supervisory haircut method for securities financing transactions, provided that the holding periods for securities financing transaction calculations specified in subregulation (9)(b)(xiv) shall apply even if more than 5000 trades are within one netting set, that is, the higher specified supervisory floor for more than 5000 trades shall not apply in this case;

(ii) for purposes of calculating K_{CCP} via the current exposure method (CEM), the relevant formula specified in subregulation (17) shall be replaced with the formula:

$$A_{Net} = 0.15*A_{Gross} + 0.85*NGR*A_{Gross}$$

where, for the purposes of this calculation-

(aa) the numerator of the NGR shall be $EBRM_i$, as specified hereinbefore, without the CEM add-on in case of OTC derivatives, and the denominator shall be the gross replacement cost, provided that when the minimum variation margin settlement frequency is daily, but the qualifying central counterparty calls margin intraday, then NGR shall be calculated just before margin is actually exchanged at the end of the day, with NGR expected to be non-zero;

(bb) the NGR shall be calculated on a counterparty by counterparty basis;

(cc) when NGR cannot be calculated as required, the bank shall apply a transitional default value for NGR of 0.30, until 31 March 2013, whereafter the bank shall follow the relevant approach specified in respect of non-qualifying central counterparties;

(iii) the potential future exposure calculation under the CEM for options and swaptions that are transacted through a qualifying central counterparty shall be adjusted by multiplying the relevant notional amount of the contract by the absolute value of the option's delta, which shall be calculated according to the relevant requirements and formula specified in subregulation (18)(b);

(iv) the netting sets that are applicable to regulated clearing members shall be the same as those envisaged in paragraph (d)(i)(C) above, provided that, for all other clearing members, the netting rules specified by the relevant qualifying central counterparty and based upon notification of each of its clearing members, or such requirements related to netting sets as may be specified in writing by the Registrar, shall apply.

(C) Following the first-step calculation envisaged in item (B) above, the aggregate capital requirement for all relevant clearing members, prior to any relevant concentration and/or granularity adjustment, shall be calculated, assuming a scenario where two average clearing members default and therefore their default fund contributions are not available to mutualise losses, which scenario is incorporated in the risk-sensitive formulae specified below:

$$K_{CM}^{*} = \begin{cases} c_2 \cdot \mu \cdot \left(K_{CCP} - DF^{'}\right) + c_2 \cdot DF_{CM}^{'} & if \quad DF^{'} < K_{CCP} \quad (i) \\ c_2 \cdot \left(K_{CCP} - DF_{CCP}\right) + c_1 \cdot \left(DF^{'} - K_{CCP}\right) & if \quad DF_{CCP} < K_{CCP} \leq DF^{'} \quad (ii) \\ c_1 \cdot DF_{CM}^{'} & if \quad K_{CCP} \leq DF_{CCP} \quad (iii) \end{cases}$$

where:

K^*_{CM} is the aggregate capital requirement on default fund contributions from all relevant clearing members prior to the application of any relevant granularity and/or concentration adjustment

DF_{CCP} is the qualifying central counterparty's prefunded own resources, such as contributed capital, retained earnings, etc., that are required to be used by the relevant qualifying central counterparty to cover its losses before clearing members' default fund contributions are used to cover such losses

DF'_{CM} is the prefunded default fund contributions from surviving clearing members available to mutualise losses under the assumed scenario. Specifically:

$$DF'_{CM} = DF_{CM} - 2 \cdot \overline{DF_i}$$

where $\overline{DF_i}$ is the average default fund contribution

DF' is the total prefunded default fund contributions available to mutualise losses under the assumed scenario. Specifically:

$$DF' = DF_{CCP} + DF'_{CM}$$

c_1 is a decreasing capital factor, between 0.16 per cent and 1.6 per cent, applied to the excess prefunded default funds provided by clearing members, that is, DF_{CM}:

$$c_1 = Max\left\{\frac{1.6\%}{(DF'/K_{CCP})^{0.3}}; 0.16\%\right\}$$

c_2 is 100 per cent; a capital factor applied when a qualifying central counterparty's own resources (DF_{CCP}) are less than such qualifying central counterparty's hypothetical capital requirements (K_{CCP}), and, as a result, the clearing member default funds are expected to assist in the coverage of the qualifying central counterparty's hypothetical capital requirements (K_{CCP})

μ is 1.2; an exposure scalar that is applied in respect of the unfunded part of the qualifying central counterparty's hypothetical capital requirements (K_{CCP})

and

Equation (i) shall apply when a qualifying central counterparty's total prefunded default fund contributions (DF) are less than the qualifying central counterparty's hypothetical capital requirements (K_{CCP}), in which case the clearing members' unfunded default fund commitments are expected to bear such loss and the exposure for a clearing member bank is expected to be greater than the exposure if all default funds had been prefunded, due to the potential failure of other members to make additional default fund contributions when called.

When a qualifying central counterparty's total prefunded default fund contributions (DF) are not sufficient to cover the qualifying central counterparty's hypothetical capital requirements (K_{CCP}), and clearing members do not have an obligation to contribute more default funds to offset a shortfall in qualifying central counterparty loss-absorbing resources, such clearing members shall still be subject to an additional capital requirement because their exposures to such qualifying central counterparty are, in fact, riskier than would be the case if the qualifying central counterparty had access to adequate resources to cover its hypothetical capital requirements. This requirement reflects the underlying assumption that qualifying central counterparties, through own resources and member default funds, are expected to have adequate loss-bearing, mutualised, financial resources to make defaults on their exposures highly unlikely. When such loss-bearing resources are inadequate, the members' exposures are bearing additional risk, and require additional capital.

Therefore, an exposure scalar (μ) of 1.2 is applied in respect of the unfunded part of K_{CCP}, to reflect the bank's increased exposure arising from reliance on unfunded default fund contributions. When a part of the qualifying central counterparty's own financial resources available to cover losses is used after all clearing members' default fund contributions (DF_{CM}) are used to cover losses, then this part of the qualifying central counterparty's contribution to losses shall be included as part of the total default fund (DF).

Equation (ii) shall apply when a qualifying central counterparty's own resource contributions to losses (DF_{CCP}) and the clearing members' default contributions (DF_{CM}), are both required to cover the qualifying central counterparty's hypothetical capital (K_{CCP}), but are, in the aggregate, greater than the qualifying central counterparty's hypothetical capital requirements K_{CCP}. As stated hereinbefore, for DF_{CCP} to be included in the total default fund available to mutualise losses (DF'), the qualifying central counterparty's own resources have to be used before DF_{CM}. When that is not the case, and a part of the qualifying central counterparty's own financial resources is used in combination, on a pro rata or formulaic basis, with the clearing members' default fund contributions (DF_{CM}) to cover qualifying central counterparty losses, then this equation shall be adapted in accordance with such conditions or requirements as may be specified in writing by the Registrar, in order to ensure that this part of the qualifying central counterparty contribution is treated in a manner similar to a clearing member's default fund contribution.

Equation (iii) shall apply when a qualifying central counterparty's own financial resource contribution to loss (DF_{CCP}) is used first in the waterfall, and is greater than the qualifying central counterparty's hypothetical capital (K_{CCP}), so that the qualifying central counterparty's own financial resources are expected to bear all of the qualifying central counterparty's losses before the clearing members' default fund contributions (DF_{CM}) are called upon to bear any loss.

(D) Following the second calculation envisaged in item (C) above, the capital requirement for an individual clearing member 'i' (K_{CMi}) shall be calculated by distributing K^{*}_{CM} to individual clearing members in proportion to the individual clearing member's share of the total prefunded default fund contributions, that is, the presumption shall be that losses will be allocated proportionate to prefunded DF contributions of clearing members, provided that-

(i) when the relevant practice of the qualifying central counterparty differs, the aforesaid allocation method shall be adjusted in accordance with such conditions or requirements as may be specified in writing by the Registrar following consultation;

(ii) the granularity and concentration of the relevant qualifying central counterparty shall be taken into account through the application of the respective factors 'N', which accounts for the number of members, and 'β', as follows:

$$K_{CM_i} = \left(1 \div \beta \cdot \frac{N}{N-2}\right) \cdot \frac{DF_i}{DF_{CM}} \cdot K^*_{CM}$$

where:

β is equal to $\frac{A_{Net,1} + A_{Net,2}}{\sum_i A_{Net,i}}$

and subscripts 1 and 2 denote the clearing members with the two largest A_{Net} values, and A_{Net}

(aa) for OTC derivatives is defined as in item (B) hereinbefore, that is,

$A_{Net} = 0.15*A_{Gross} + 0.85*NGR*A_{Gross}$; and

(bb) for securities financing transactions shall be replaced by $E*H_e + C*(H_c+H_{fx})$, as defined in subregulation (9)(b)

N is the number of clearing members

DF_i is the prefunded default fund contribution from an individual clearing member 'i'

DF_{CM} is the prefunded default fund contributions from all clearing members, or any other member-contributed financial resources that are available to bear mutualised qualifying central counterparty losses

(iii) when the aforesaid allocation method can not be applied because the relevant qualifying central counterparty does not have prefunded default fund contributions, the allocation method specified below shall apply:

(aa) allocate K^*_{CM} based upon each relevant clearing member's proportionate liability for default fund calls, that is, unfunded DF commitment; or

(bb) when such an allocation is not determinable, the allocation of K^*_{CM} shall be based upon the size of each clearing member's posted initial margin,

which allocation approaches shall replace (DF_i / DF_{CM}) in the aforesaid calculation of K_{CMi}.

(E) In all relevant cases, sufficient information regarding or related to the calculation of K_{CCP}, DF_{CM}, and DF_{CCP} shall be made available-

(i) to allow the Registrar or any relevant supervisor of the qualifying central counterparty to appropriately oversee the said calculations;

(ii) to permit each relevant clearing member to calculate its capital requirement for the default fund; and

(iii) for the relevant supervisor of such clearing member to review and confirm the required calculations,

provided that, as a minimum-

(aa) K_{CCP} shall be calculated on a quarterly basis or such more frequent basis as may be specified in writing by the Registrar;

(bb) whichever person makes the aforesaid calculations shall, whenever required, make available to the relevant supervisor of any relevant bank clearing member sufficient aggregate information regarding the composition of the qualifying central counterparty's exposures to clearing members and information provided to the clearing member for the purposes of the calculation of K_{CCP}, DF_{CM}, and DF_{CCP};

(cc) relevant required information shall be made available to the relevant supervisor on a sufficiently frequent basis to allow the supervisor to duly monitor the risks incurred by the relevant clearing members;

(dd) K_{CCP} and K_{CMi} shall be recalculated at least quarterly, or whenever material changes occur in respect of, for example, the number or exposure of cleared transactions, or the financial resources of the relevant qualifying central counterparty.

(viii) *Method 2: calculation in respect of default fund exposure*

A bank that acts as a clearing member may apply a risk weight of 1250 per cent, or such imputed percentage that will effectively result in an amount equivalent to a deduction against capital and reserve funds, to its default fund exposures to the relevant qualifying central counterparty, provided that-

(A) an overall limit shall apply in respect of the relevant aggregate amount of risk-weighted exposure related to all the bank's relevant exposures to that qualifying central counterparty, including any relevant amount of trade exposure, which limit shall be equal to 20 per cent times the relevant amount of trade exposures to that qualifying central counterparty, that is, in terms of this approach, the relevant aggregate amount of risk weighted exposure for both trade and default fund exposures of bank "i" to each relevant qualifying central counterparty shall be equal to:

$$Min \{(2\% * TE_i + 1250\% * DF_i); (20\% * TE_i)\}$$

where:

TE_i is the trade exposure of bank "i" to the relevant qualifying central counterparty, as measured by the bank in accordance with the relevant requirements specified in paragraph (d)(i) above

DF_i is the pre-funded contribution of bank "i" to the relevant qualifying central counterparty's default fund

(B) since the equation specified in item (A) above already incorporates the 2 per cent risk weight on trade exposures specified in paragraph (d)(i), the said 2 per cent risk weight shall not otherwise apply for purposes of this calculation.

(e) Exposures to non-qualifying central counterparties

In respect of a bank's-

(i) trade exposure to a non-qualifying central counterparty, based on the relevant type or category of counterparty credit exposure, a bank shall apply the relevant requirements specified in these Regulations for the standardised approach for the measurement of its exposure to credit risk;

(ii) default fund contributions to a non-qualifying central counterparty, which default fund contributions shall for purposes of this paragraph (e) include both the funded and the unfunded contributions to be paid when required by the relevant central counterparty, the bank shall apply a risk weight of 1250 per cent, or such imputed percentage that will effectively result in an amount equivalent to a deduction against capital and reserve funds, provided that in respect of any liability for unfunded contributions, that is, any relevant unlimited binding commitment, the Registrar shall specify in writing the relevant amount of unfunded commitment to which the bank shall apply the aforesaid risk weight of 1250 per cent or such imputed percentage that will effectively result in an amount equivalent to a deduction against capital and reserve funds.

(f) Matters related to minimum required capital and reserve funds for CVA risk, calculated in terms of the standardised approach

(i) A bank, other than a bank that obtained the approval of the Registrar for the use of the internal model method for the measurement of the bank's exposure to counterparty credit risk and the internal models approach for the measurement of specific risk as part of the bank's exposure to market risk, shall calculate the relevant additional required amount of capital on a portfolio basis in accordance with the formula specified below:

$$K = 2.33 * \sqrt{h} * \sqrt{(A - B)^2 + C}$$

where:

$$A = \sum_i 0.5 * w_i * (Mi * EAD_i^{total} - Mi^{hedge} Bi)$$

$$B = \sum_{ind} w_{ind} * M_{ind} * B_{ind}$$

$$C = \sum_i 0.75 * w_i^2 * (Mi * EAD_i^{total} - Mi^{hedge} Bi)^2$$

h is the one-year risk horizon, in units of a year, h = 1.

w_i is the weight applicable to counterparty 'i', provided that-

(i) based on its external rating, counterparty 'i' shall be mapped to one of the seven weights specified in table 16 below:

Table 16

Rating[1]	Weight w_i
AAA	0.7%
AA	0.7%
A	0.8%
BBB	1.0%
BB	2.0%
B	3.0%
CCC	10.0%

1. The notations used in this table relate to the ratings used by a particular credit assessment institution. The use of the rating scale of a particular credit assessment institution does not mean that any preference is given to a particular credit assessment institution. The assessments/ rating scales of other external credit assessment institutions recognised as eligible institutions in South Africa, may have been used instead.

(ii) subject to the prior written approval of and such conditions as may be specified in writing by the Registrar, when a counterparty does not have an external rating, the bank shall map the relevant internal rating of the counterparty to one of the relevant external ratings specified above

EAD_i^{total} is the exposure at default of counterparty 'i', aggregated across all relevant netting sets, including the effect of any relevant collateral in accordance with the relevant requirements specified in these Regulations for the Standardised Method, the Current Exposure Method or the Internal Model Method, provided that in the case of-

(i) a bank other than a bank that obtained the approval of the Registrar to adopt the Internal Model Method for the measurement of the bank's exposure to counterparty risk, the bank shall apply the following discounting factor to the exposure:

$(1 - \exp(-0.05*M_i))/(0.05*M_i)$;

(ii) a bank that obtained the approval of the Registrar to adopt the Internal Model Method for the measurement of the bank's exposure to counterparty risk, the relevant discount factor is already included in M_i, and no further discount shall be applied

B_i is the notional amount of purchased single name CDS hedges, which notional amounts shall be aggregated in the case of more than one position referencing counterparty 'i', and used to hedge the bank's exposure to CVA risk, provided that the bank shall apply the following discounting factor to the relevant notional amount:

$(1 - \exp(-0.05*M_i^{hedge}))/(0.05* M_i^{hedge})$

B_{ind} is the full notional amount of one or more index CDS of purchased protection, used to hedge the bank's exposure to CVA risk, provided that the bank shall apply the following discounting factor to the relevant notional amount:

$(1 - \exp(-0.05*M_{ind}))/(0.05* M_{ind})$

w_{ind} is the relevant weight applicable to index hedges, provided that the bank shall map indices to one of the seven weights (w_i) specified in table 16, based on the average spread of index 'ind'

M_i is the effective maturity of the relevant transactions with counterparty 'i', provided that-

(i) in the case of a bank other than a bank that obtained the approval of the Registrar to adopt the Internal Model Method for the measurement of the bank's exposure to counterparty risk, M_i shall be the notional weighted average maturity as envisaged in regulation 23(13)(d)(ii)(B)(iii), provided that M_i shall for purposes of this calculation not be capped at 5 years;

(ii) a bank that obtained the approval of the Registrar to adopt the Internal Model Method for the measurement of the bank's exposure to counterparty risk shall calculate M_i in accordance with the relevant requirements specified in subregulation (19)(c)

M_i^{hedge} is the maturity of the hedge instrument with notional B_i, provided that in the case of several positions the bank shall aggregate the relevant quantities $M_i^{hedge} \cdot B_i$

M_{ind} is the maturity of the index hedge 'ind', provided that in the case of more than one index hedge position, it shall be the relevant notional weighted average maturity

Provided that, subject to the prior written approval of and such conditions as may be specified in writing by the Registrar, when a counterparty is also a constituent of an index on which a CDS is used to hedge the bank's exposure to counterparty credit risk, the notional amount attributable to that relevant single name, as per its reference entity weight, may be subtracted from the relevant index CDS notional amount and treated as a single name hedge (Bi) of the individual counterparty with maturity based on the maturity of the index.

(g) Matters related to the calculation of the aggregate amount of required capital and reserve funds for counterparty credit risk and credit valuation adjustments

The aggregate amount of required capital and reserve funds related to a bank's exposure to counterparty credit risk and CVA risk, that is, default risk and the risk of mark-to-market losses in respect of specified exposures, shall in the case of-

(i) a bank that obtained the approval of the Registrar for the use of the internal model method for the measurement of the bank's exposure to counterparty credit risk and the internal models approach for the measurement of specific risk as part of a bank's exposure to market risk, be equal to the sum of-

(A) the higher of the relevant required amount of capital and reserve funds for default risk calculated in terms of the internal model method based on-

(i) current parameter calibrations for EAD; or

(ii) stressed parameter calibrations for EAD,

Provided that when a bank that obtained the approval of the Registrar for the use of the IRB approach can demonstrate to the satisfaction of the Registrar that in its VaR calculations made in terms of the relevant requirements specified in subregulation (19)(h)(i), the relevant specific VaR model incorporates the effects of rating migrations, the bank shall calculate the risk weights applied to its relevant OTC derivative exposures with the full maturity adjustment as a function of PD and M set equal to 1, provided that when the bank is unable to demonstrate the aforesaid to the satisfaction of the Registrar, the bank shall apply the full maturity adjustment function, through the application of the formula specified below:

$(1 - 1.5 \times b)^{-1} \times (1 + (M - 2.5) \times b)$

where:

M is the effective maturity; and

b is the maturity adjustment as a function of the PD,

as envisaged in subregulation (11)(d)(ii) read with the relevant requirements specified in subregulation (13)(d)(ii)(B)

and

(B) the relevant amount of required capital and reserve funds for CVA risk calculated in accordance with the relevant requirements specified in paragraph (b)(iv) above read with the relevant requirements specified in subregulation (19)(h) below;

(ii) a bank that obtained the approval of the Registrar for the use of the internal model method for the measurement of the bank's exposure to counterparty credit risk, but not for the use of the internal models approach for the measurement of specific risk as part of a bank's exposure to market risk, be equal to the sum of-

(A) the higher of the relevant required amount of capital and reserve funds for default risk calculated in terms of the internal model method based on-

(i) current parameter calibrations for EAD; or

(ii) stressed parameter calibrations for EAD,

and

(B) the relevant amount of required capital and reserve funds for CVA risk calculated in accordance with the standardised approach specified in paragraph (f) above;

(iii) all banks other than the banks envisaged in subparagraphs (i) and (ii) above, be equal to the sum of-

(A) the relevant aggregate required amount for default risk calculated in accordance with the relevant requirements related to the said current exposure method or standardised method for all relevant counterparties and instruments; and

(B) the relevant amount of required capital and reserve funds for CVA risk calculated in accordance with the standardised approach specified in paragraph (f) above.

(16) Conditions subject to which an exposure value or EAD of zero may be applied in respect of a bank's exposure to counterparty credit risk

(a) Unless specifically otherwise provided in these Regulations, a bank may in respect of its exposure to counterparty credit risk apply an exposure value or EAD of zero, provided that-

(i) the said exposure to counterparty credit risk shall relate to protection provided by the reporting bank in the form of a credit-default swap contract, which contract is held in the bank's banking book, provided that the said contract-

(A) shall be treated similar to a guarantee provided by the reporting bank and in accordance with the relevant requirements specified in subregulations (9)(d), (12)(e) or (14)(d), as the case may be;

(B) shall be subject to required capital and reserve funds in respect of the contract's full notional amount;

(ii) the said exposure to counterparty credit risk shall relate to purchased credit derivative protection and the reporting bank shall calculate its required amount of capital and reserve funds in respect of the hedged exposure in accordance with the relevant requirements specified in subregulation (15)(b)(i) above.

(17) Method 1: Calculation of counterparty credit exposure in terms of the current exposure method

(a) *Matters relating to the exposure amount or EAD*

A bank that adopted the current exposure method for the measurement of the bank's exposure to counterparty credit risk-

(i) shall in respect of each relevant transaction, contract or netting set calculate the relevant replacement cost or net replacement cost of the said transaction, contract or netting set;

(ii) shall in respect of each relevant netting set multiply the relevant notional principle amount with the relevant credit conversion factors specified in table 17 below in order to calculate the relevant required add-on amount, which add-on amount shall be calculated independent from and irrespective of the relevant replacement cost or value calculated in terms of the provisions of subparagraph (i) above.

Table 17
Credit conversion factor

Remaining maturity	**Interest rates**	**FX and gold**	**Equities**	**Precious metals except gold**	**Other commodities**
One year or less	0,0%	1,0%	6,0%	7,0%	10,0%
More than one year to five years	0,5%	5,0%	8,0%	7,0%	12,0%
More than five years	1,5%	7,5%	10,0%	8,0%	15,0%

(iii) may recognise eligible collateral obtained in respect of the bank's exposure to counterparty credit risk in accordance with the relevant requirements specified in subregulation (9)(b)(iv) read with the provisions of subregulation (9)(b)(vii);

(iv) shall in the case of any single name credit derivative contract held in the bank's trading book calculate the bank's exposure amount or EAD through the application of the relevant potential future exposure add-on factors specified in table 18 below:

Table 18

Potential future exposure add-on factor[1]

Description	Protection buyer	Protection seller
Total-return swap		
Qualifying[2] reference obligation	5%	5%
Non-qualifying reference obligation	10%	10%
Credit-default swap		
Qualifying[2] reference obligation	5%	5%[3]
Non-qualifying reference obligation	10%	10%[3]

1. **Add-on factors are not affected by differences in residual maturity.**
2. **Qualifying shall for purposes of this regulation bear the same meaning as the "qualifying" category for the treatment of specific risk relating to instruments in terms of the standardised measurement method in regulation 28(7).**
3. **The protection seller of a credit-default swap shall be subject to the add-on factor only when it is subject to closeout upon the insolvency of the protection buyer while the underlying is still solvent, in which case the add-on shall be limited to the amount of any unpaid premium.**

(v) shall in the case of any qualifying credit derivative instrument held in respect of a banking book exposure calculate the bank's required amount of capital and reserve funds in accordance with the relevant requirements specified in subregulation (9)(d);

(vi) shall in the case of any-

(A) first to default credit derivative transaction determine the relevant add-on factor based on the lowest credit quality underlying instrument in the basket, that is, when the basket contains any non-qualifying items, the bank shall apply the add-on factor relating to the said non-qualifying reference obligation;

(B) second and subsequent to default credit derivative transaction allocate the underlying assets based on the credit quality of the assets, that is, the second lowest credit quality shall determine the add-on factor in respect of a second to default transaction;

(vii) may in respect of any OTC derivative transaction or contract subject to novation or a legally enforceable bilateral netting agreement recognise the effect of the said novation or netting agreement provided that the bank shall at all times comply with the relevant requirements specified in paragraph (b) below;

(viii) shall calculate its adjusted exposure amount or EAD through the application of the formula specified below, which formula is designed to recognise the effect of collateral and any volatility in the amount relating to the collateral, and, when relevant, the effect of any legally enforceable bilateral netting agreement. The formula is expressed as:

$E^* = (RC + \text{add-on}) - C_A$

where:

RC is the relevant current replacement cost, or

when the bank has in place a legally enforceable netting agreement that complies with the relevant requirements specified in paragraph (b) below, the current net replacement cost of the relevant netting set, that is, when the bank has in place a legally enforceable netting agreement the bank may net off positive market values against negative market values in order to calculate a single net current exposure for all transactions covered by the said netting agreement, subject to a minimum value of zero

Add-on is the estimated amount relating to the potential future exposure, or

when the bank has in place a legally enforceable netting agreement that complies with the relevant requirements specified in paragraph (b) below, the adjusted add-on amount, that is, the add-on amount may be reduced through the application of the formula specified below, which formula is designed to recognise reductions in the volatility of current exposures resulting from netting agreements

$A_{net} = 0.4(A_{gross}) + 0.6(NGR \times A_{gross})$;

where:

$\mathbf{A_{net}}$ is the adjusted add-on for all contracts subject to the bilateral netting contract

$\mathbf{A_{gross}}$ is the sum of the gross add-ons for the contracts covered by the netting agreement. $\mathbf{A_{gross}}$ is equal to the sum of individual add-on amounts, calculated by multiplying the relevant notional principal amount with the relevant specified add-on factor, of all transactions subject to the bilateral netting contract

NGR is the ratio of the net current exposure of the contracts included in the bilateral netting agreement to the gross current exposure of the said contracts

C_A is the volatility adjusted collateral amount calculated in accordance with the relevant requirements of the comprehensive approach specified in subregulation (9)(b), or zero in the absence of eligible collateral, provided that the bank shall apply the relevant haircut for currency risk, that is, Hfx, when a mismatch exists between the collateral currency and the settlement currency. Even when more than two currencies are involved in the exposure, collateral and settlement currency, the bank shall, based on the frequency of mark-to-market, apply a single haircut assuming a 10-business day holding period, scaled up as necessary.

(b) Matters relating to bilateral netting

A bank that adopted the current exposure method for the measurement of the bank's exposure to counterparty credit risk may in the case of OTC transactions-

(i) net transactions subject to novation, in terms of which netting any obligation between the bank and its counterparty to deliver a given currency on a given value date is automatically amalgamated with all other obligations for the same currency and value date, legally substituting one single amount for the previous gross obligations;

(ii) net transactions subject to any legally valid form of bilateral netting not included in subparagraph (i) above, including any other form of novation,

provided that in all cases-

(A) the bank shall have in place a netting contract or agreement with the said counterparty which contract or agreement shall create a single legal obligation, covering all included transactions, such that the bank would have either a claim to receive or obligation to pay only the net sum of the positive and negative mark-to-market values of the said transactions in the event of counterparty failure to perform in accordance with the contractual agreement, irrespective whether or not the said failure relates to default, bankruptcy, liquidation or similar circumstances;

(B) the bank shall have in place written and reasoned legal opinions confirming that in the event of a legal challenge the relevant courts and administrative authorities would find the bank's exposure to be the said net amount in terms of-

(i) the law of the jurisdiction in which the counterparty is incorporated or chartered, and when the foreign branch of a counterparty is involved, also in terms of the law of the jurisdiction in which the branch is located;

(ii) the law that governs the individual transactions; and

(iii) the law that governs any contract or agreement necessary to effect the said novation or netting;

(C) when a national supervisor or regulator is not satisfied with the legal enforceability of the said agreement, neither counterparty shall apply netting in respect of the relevant transactions or contracts;

(D) the bank shall have in place robust procedures in order to continuously monitor the legal characteristics of the said netting agreement for possible changes in relevant law that may affect the legal enforceability of the said agreement;

(E) since the gross obligations are not in any way affected, no payment netting agreement, which agreement is designed to reduce the operational costs of daily settlements, shall be taken into consideration in the calculation of the reporting bank's exposure amount, EAD or required capital and reserve funds;

(F) no contract containing walk-away clauses, that is, any provision that permits a non-defaulting counterparty to make only limited payments or no payment at all to the estate of a defaulter, even when the defaulter is a net creditor, shall be eligible for netting in terms of these Regulations;

(G) the exposure amount or EAD shall be the sum of the net mark-to-market replacement cost, if positive, plus the said add-on amount, calculated in accordance with the relevant requirements specified in paragraphs (a) above.

(18) Method 2: Calculation of counterparty credit exposure in terms of the standardised method

(a) *Matters relating to the exposure amount or EAD*

A bank that adopted the standardised method for the measurement of the bank's exposure to counterparty credit risk-

(i) shall separately calculate its counterparty credit exposure or EAD amount in respect of each relevant netting set through the application of the formula specified below:

The exposure amount or EAD shall be equal to-

$$\beta \cdot \max\left(CMV - CMC; \sum_j \left| \sum_i RPT_{ij} - \sum_l RPC_{lj} \right| \times CCF_j \right)$$

where:

CMV is the relevant current market value of the relevant portfolio of transactions within the netting set with a particular counterparty, gross of any collateral, that is,

$$CMV = \sum_i CMV_i$$

where:

CMVi is the relevant current market value of transaction i

CMC is the relevant current market value of the collateral assigned to the relevant netting set, that is,

$$CMC = \sum_l CMC_l$$

where:

CMC_l is the relevant current market value of collateral l

i is the index designating transaction

l is the index designating collateral

j is the index designating specified hedging sets, which hedging sets correspond to risk factors for which risk positions of opposite sign may be offset to yield a net risk position on which the exposure measure is based

RPT_{ij} is the relevant risk position from transaction i with respect to hedging set j, that is, for example, a short-term FX forward contract with one leg denominated in the domestic currency shall be mapped into three risk positions, which is, firstly an FX risk position, secondly a foreign currency interest rate risk position and finally a domestic currency risk position

RPC_{lj} is the risk position from collateral l with respect to hedging set j

CCF_j is the specified credit conversion factor with respect to the hedging set j

β is the beta factor, which beta factor shall be equal to 1.4, provided that based on the reporting bank's exposure to counterparty credit risk and the related risk factors, the Registrar may specify a beta factor higher than 1.4

(ii) shall in the calculation of the exposure amount or EAD include collateral received from a counterparty as a positive amount and collateral posted to a counterparty as a negative amount, provided that only instruments qualifying as eligible collateral in accordance with the relevant provisions of subregulation (9)(b)(iv) shall be recognised as eligible collateral in terms of the provisions of this subregulation (18);

(iii) shall assign to any risk position that reflects a long position in respect of a transaction with a linear risk profile a positive sign, and to any risk position that reflects a short position in respect of a transaction with a linear risk profile a negative sign;

(iv) shall in the case of an OTC derivative transaction with a linear risk profile, such as a forward contract, future contract or swap contract, which contract requires an exchange of a financial instrument such as a bond, an equity instrument or a commodity against payment, treat the payment part of the transaction in accordance with the relevant requirements relating to payment legs specified in this subregulation (18);

(v) shall in the case of transactions that require the exchange of payment against payment, such as an interest-rate-swap contract or foreign-exchange forward contract, identify the relevant payment legs of the contract, which payment legs shall be represented by the contractually agreed gross payments, including the notional amount of the transaction, provided that for purposes of calculating the bank's exposure to counterparty credit risk-

(A) the bank may in the case of payment legs with a remaining maturity of less than one year disregard any relevant interest rate risk;

(B) the bank may treat transactions that consist of two payment legs denominated in the same currency, such as an interest-rate swap contract, as a single aggregate transaction;

(vi) shall in the case of transactions with linear risk profiles with equity, equity indices, gold, other precious metals or other commodities as the underlying financial instruments, map-

(A) the relevant component of the transaction to a risk position in the relevant equity, equity index or commodity hedging set, which commodity hedging set may relate to gold or other precious metals;

(B) the relevant payment leg of the transaction to an interest rate risk position within the appropriate interest rate hedging set, provided that when the payment leg is denominated in a foreign currency the bank shall also map the relevant component of the transaction to a foreign exchange risk position in the relevant currency;

(vii) shall in the case of transactions with linear risk profiles with a debt instrument such as a bond or loan as the underlying instrument, map the relevant transaction to an interest rate risk position with one risk position in respect of the relevant debt instrument and another risk position in respect of the payment leg, provided that-

(A) any transaction with a linear risk profile that requires an exchange of payment against payment, including any relevant foreign exchange forward contract, shall be mapped to an interest rate risk position in respect of each of the relevant payment legs;

(B) when the underlying debt instrument is denominated in a foreign currency, the bank shall map the relevant debt instrument to a foreign exchange risk position in the relevant currency;

(C) when a payment leg is denominated in a foreign currency, the bank shall map the relevant payment leg to a foreign exchange risk position in the said currency, that is, the bank, for example, shall map a short-term FX forward contract with one leg denominated in domestic currency into three risk positions, which is, firstly an FX risk position, secondly a foreign currency interest rate risk position and finally a domestic currency risk position;

(D) the bank shall assign to any foreign-exchange basis swap transaction an exposure amount or EAD of zero;

(viii) shall determine the size and sign of all relevant risk positions in accordance with the relevant formulae and requirements specified in paragraph (b) below, provided that in the case of-

(A) any transaction with a non-linear risk profile in respect of which the reporting bank is unable to determine the required delta value; or

(B) any payment leg or transaction with a debt instrument as the underlying instrument and in respect of which payment leg or transaction the reporting bank is unable to determine the required modified duration,

through the application of the bank's internal model approved by the Registrar for the measurement of the bank's exposure to market risk, the Registrar may determine the size of the relevant risk position or require the bank to instead use the current exposure method, provided that in the said cases the reporting bank shall not apply any netting and shall determine the relevant exposure amount or EAD as if the netting set comprised of only the said individual transaction;

(ix) shall group all relevant risk positions into the appropriate hedging sets specified in paragraph (c) below, provided that in respect of each relevant hedging set the reporting bank-

(A) shall calculate the absolute amount of the sum of the relevant risk positions, which sum shall constitute the net risk position and in the formula specified in subparagraph (i) above be represented by the variable-

$$\left|\sum_{i} RPT_{ij} - \sum_{l} RPC_{lj}\right|$$

(B) shall in the case of option contracts include in the relevant net risk position any sold option that may increase the current market value of the relevant netting set;

(x) shall in respect of the net risk position relating to a specific hedging set apply the relevant credit conversion factors specified in paragraph (d) below, provided that in the case of-

(A) any transaction with a non-linear risk profile in respect of which the reporting bank is unable to determine the required delta value; or

(B) any payment leg or transaction with a debt instrument as the underlying instrument and in respect of which payment leg or transaction the reporting bank is unable to determine the required modified duration,

through the application of the bank's internal model approved by the Registrar for the measurement of the bank's exposure to market risk, the Registrar may determine the relevant credit conversion factor relating to the relevant risk position or require the bank to instead use the current exposure method, provided that in the said cases the reporting bank shall not apply any netting and shall determine the relevant exposure amount or EAD as if the netting set comprised of only the said individual transaction.

(b) *Further matters relating to the size and sign of an exposure amount or EAD*

In respect of any bank that adopted the standardised method for the measurement of the bank's exposure to counterparty credit risk, the size of a risk position arising from-

(i) any instrument other than a debt instrument, which risk position relate to a transaction with a linear risk profile, shall be the effective notional value, that is, the relevant market price multiplied by the relevant quantity, of the relevant underlying financial instrument, which instrument may include a commodity, converted to the bank's domestic currency;

(ii) a debt instrument, and the payment legs of all transactions, shall be the effective notional value of the outstanding gross payments, including the notional amount, converted to the bank's domestic currency, multiplied by the modified duration of the relevant debt instrument or payment leg;

(iii) a credit-default swap, shall be the notional value of the relevant reference debt instrument multiplied by the remaining maturity of the said credit-default swap;

(iv) an OTC derivative instrument with a non-linear risk profile, including options and swaptions, shall be the delta equivalent effective notional value of the relevant financial instrument underlying the transaction provided that the underlying financial instrument is an instrument other than a debt instrument;

(v) an OTC derivative instrument with a non-linear risk profile, including options and swaptions, in respect of which instrument the underlying is a debt instrument or payment leg, shall be the delta equivalent effective notional value of the relevant financial instrument or payment leg multiplied by the modified duration of the relevant debt instrument or payment leg,

provided that the reporting bank may use the formulae specified below in order to determine the size and sign of a specific risk position.

(A) In the case of all instruments other than debt instruments, through the application of the formula specified below:

The effective notional value or delta equivalent notional value shall be equal to-

$$p_{ref} \frac{\partial V}{\partial p}$$

where:

p_{ref} is the relevant price of the underlying instrument, expressed in the reference currency

v is the relevant value of the financial instrument, that is, in the case of an option contract, the option price, and in the case of a transaction with a linear risk profile, the value of the underlying instrument itself

p is the price of the underlying instrument, expressed in the same currency as "v"

(B) In the case of all debt instruments, and the payment legs of all transactions, through the application of the formula specified below:

Effective notional value multiplied by the modified duration, or

Delta equivalent in notional value multiplied by the modified duration

$$\frac{\partial V}{\partial r}$$

where:

v is the relevant value of the financial instrument, that is, in the case of an option contract, the option price, and in the case of a transaction with a linear risk profile, the value of the underlying instrument itself or of the relevant payment leg

Provided that when **"v"** is denominated in a currency other than the reference currency, the bank shall convert the derivative into the reference currency by multiplying the relevant amount with the relevant exchange rate

r is the relevant interest level

(c) *Matters relating to hedging sets*

A bank that adopted the standardised method for the measurement of the bank's exposure to counterparty credit risk-

(i) shall in the case of any interest rate position arising from debt instruments of low specific risk, that is, any debt instrument subject to a specific risk capital requirement of 1,6 per cent or lower in terms of the relevant requirements relating to the standardised approach for market risk envisaged in regulation 28(4) read with the relevant requirements specified in regulation 28(7), and in respect of each relevant currency, map the relevant position into one of six hedging sets specified in table 20 below, provided that-

(A) the bank shall assign relevant interest rate positions arising from the payment legs to the same hedging sets as interest rate risk positions from debt instruments of low specific risk;

(B) the bank shall assign interest rate positions arising from money deposits received from a counterparty as collateral to the same hedging sets as interest rate risk positions from debt instruments of low specific risk;

(C) in the case of any underlying debt instrument such as a floating rate note, or payment legs such as floating rate legs relating to interest swaps, in respect of which the interest rate is linked to a reference interest rate that represents a general market interest level such as a government bond yield, a money market rate or swap rate, the bank shall base the rate adjustment frequency on the length of the time interval up to the next re-adjustment of the reference interest rate. Otherwise, the remaining maturity shall be the remaining life of the underlying debt instrument or, in the case of any payment leg, the remaining life of the transaction;

(D) there shall be one hedging set in respect of each relevant issuer of a reference debt instrument that underlies a credit-default swap;

(E) there shall be one hedging set in respect of each relevant issuer of a debt instrument of high specific risk, that is, any debt instrument subject to a specific risk capital requirement of more than 1,6 per cent in terms of the relevant requirements relating to the standardised approach for market risk envisaged in regulation 28(4) read with the relevant requirements specified in regulation 28(7), or when deposits are placed as collateral with a counterparty with no debt obligations outstanding of low specific risk;

(F) when a payment leg emulates a debt instrument of high specific risk, such as a total-return swap contract with one leg emulating a bond, there shall be one hedging set in respect of each relevant issuer of the said reference debt instrument provided that the reporting bank may assign risk positions that arise from debt instruments relating to a specific issuer or from reference debt instruments of the same issuer that are emulated by payment legs or that underlie a credit-default swap to the same hedging set,

which hedging sets shall be defined per currency, based on a combination of-

(i) the nature of the reference interest rate, that is, a sovereign rate or a rate other than a sovereign rate;

(ii) the remaining maturity or rate adjustment frequency of the relevant instrument, that is, one year or less, more than one year to five years, and more than five years, as specified in table 19 below:

Table 19

Hedging sets for interest rate risk positions, per currency

Remaining maturity or rate-adjustment frequency	Sovereign-referenced interest rates	Non–sovereign referenced interest rates
One year or less	X	X
More than one year to five years	X	X
More than five years	X	X

(ii) shall in the case of underlying financial instruments other than debt instruments, such as equity instruments, precious metals or commodities, assign the relevant instrument to the same hedging set only when the said instruments are identical or similar instruments, where similar instruments in the case of-

(A) equity instruments mean instruments issued by the same issuer provided that the reporting bank shall treat an equity index as a separate issuer;

(B) precious metals mean instruments relating to the same metal provided that the reporting bank shall treat a precious metal index as a separate precious metal;

(C) commodities mean instruments relating to the same commodity provided that the reporting bank shall treat a commodity index as a separate commodity;

(D) electric power include delivery rights and obligations that relate to the same peak or off-peak load time interval within any relevant 24 hour interval.

(d) *Matters relating to credit conversion factors*

In respect of the net risk position relating to a specific hedging set, a bank that adopted the standardised method for the measurement of the bank's exposure to counterparty credit risk shall in the case of-

(i) a net risk position arising from a debt instrument or reference debt instrument apply a credit conversion factor of-

(A) 0.6 percent when the risk position relates to a debt instrument or reference debt instrument of high specific risk;

(B) 0.3 percent when the risk position relates to a reference debt instrument that underlies a credit-default swap, which instrument is of low specific risk;

(C) 0.2 percent when the risk position relates to a net position other than a position envisaged in item (A) or (B) above.

(ii) underlying financial instruments other than debt instruments, and in respect of foreign exchange rates, apply the credit conversion factors specified in table 20 below:

Table 20

Exchange rates	Gold	Equity	Precious metals (excluding gold)	Electric power	Other commodities (excluding precious metals)
2.5%	5.0%	7.0%	8.5%	4%	10.0%

(iii) underlying instruments of OTC derivative instruments, which instruments are not included in any one of the categories specified in subparagraph (i) or (ii) above, apply to the relevant notional equivalent amount a credit conversion factor of 10 per cent, provided that the reporting bank shall assign the said instrument to a separate individual hedging set in respect of each relevant category of underlying instrument.

(19) Method 3: Calculation of counterparty credit exposure in terms of the internal model method

(a) *Matters relating to the exposure amount or EAD, and matters related thereto*

A bank that obtained the approval of the Registrar to adopt the internal model method for the measurement of the bank's exposure to counterparty credit risk-

(i) shall calculate its counterparty credit exposure or EAD amount at the level of each relevant netting set and through the application of the formulae specified below, provided that-

(A) the bank shall in no case capture the effect of a reduction of EAD due to a clause in a collateral agreement that requires receipt of collateral when counterparty credit quality deteriorates;

(B) when the bank's internal model includes the effect of collateral on changes in the market value of the netting set, the bank shall jointly model collateral other than cash of the same currency as the exposure itself with the exposure in its EAD calculations for securities financing transactions;

(C) when the bank is unable to jointly model any relevant eligible collateral with the exposure to recognise in its EAD calculations for OTC derivatives the effect of collateral, other than cash of the same currency as the exposure itself, the bank shall apply either haircuts that meet the standards of the financial collateral comprehensive approach specified in subregulation (9) of these Regulations with own haircut estimates or the standard haircuts specified in subregulation (9)(b)(xi);

(D) when the bank identified specific wrong way risk in respect of a counterparty, the bank shall calculate its relevant counterparty credit exposure or EAD amount and any related amount of required capital and reserve funds in accordance with the relevant requirements specified in subparagraph (ii) below.

Exposure amount or EAD = α x EEPE

where:

EAD is the relevant exposure amount or exposure at default

α is an alpha factor, which alpha factor shall be equal to 1.4 if the bank complies with all the relevant qualitative requirements specified in regulations 39(8) to 39(12) of these Regulations, provided that-

(i) based on the reporting bank's exposure to counterparty credit risk, the bank's backtesting results of its model, the bank's level of compliance with the qualitative requirements specified in regulations 39(8) to 39(12) of these Regulations, and the related risk factors, the Registrar may specify a higher alpha factor, which related risk factors may include low granularity of counterparties, high exposures to general wrong-way risk or high correlation of market values across counterparties;

(ii) subject to the prior written approval of the Registrar and in accordance with the relevant requirements specified in paragraph (b) below, the bank may estimate its own alpha factor

EEPE is the effective expected positive exposure, which effective expected positive exposure is the weighted average effective expected exposure during the first year of future exposure calculated across possible future values of relevant market risk factors such as interest rates or foreign exchange rates and in accordance with the formula specified below, provided that when all contracts in the relevant netting set mature before one year, effective expected positive exposure shall be the weighted average of effective expected exposure until all contracts in the netting set mature

$$\text{Effective EPE} = \sum_{k=1}^{\min(1\text{ year, maturity})} \text{effective } EE_{tk} \times \Delta t_k$$

where:

EE is the expected exposure amount estimated by the bank's internal model at the relevant series of future dates

and

the weights $\Delta t_k = t_k - t_{k-1}$ make provision for the cases when future exposure is calculated at dates that are not equally spaced over time

effective expected exposure shall be calculated recursively through the application of the formula specified below

$$\text{Effective } EE_{tk} = \max(\text{effective } EE_{tk-1}, EE_{tk})$$

where:

current date shall be denoted by $\mathbf{t_0}$

and

Effective EE_{t0} shall be equal to the current exposure

(ii) shall in the case of an instrument where a connection exists between the counterparty and the underlying issuer, and for which specific wrong way risk has been identified, calculate its relevant counterparty credit exposure or EAD amount and any related required amount of capital and reserve funds in accordance with the relevant requirements specified in this subparagraph (ii), provided that-

(A) when calculating its relevant required amount of capital and reserve funds for counterparty credit risk, the relevant aforesaid instrument in respect of which a connection exists between the counterparty and the underlying issuer shall be regarded as not being part of the same netting set as other transactions with that counterparty;

(B) in the case of a single-name credit default swap, the exposure or EAD amount in respect of that swap counterparty shall be equal to the full expected loss in the remaining fair value of the underlying instruments assuming the underlying issuer is in liquidation;

The use of the full amount of expected loss in remaining fair value of the underlying instrument allows the bank to recognise, in respect of such swap, the market value that has already been lost and any expected recoveries.

Accordingly, for such swap transactions, a bank that adopted-

(i) the standardised approach for the measurement of the bank's exposure to credit risk shall apply the relevant risk weight applicable to an unsecured transaction;

(ii) the foundation or advanced IRB approach for the measurement of the bank's exposure to credit risk shall set LGD equal to 100 per cent.

Recoveries may be possible on the underlying instrument beneath such a swap. The relevant capital requirement for such underlying exposure shall be calculated without reduction for the swap that introduces wrong way risk. Normally this will result in the underlying exposure being risk weighted equivalent to an unsecured transaction, that is, assuming the underlying exposure is an unsecured credit exposure.

(C) in the case of equity derivatives, bond options, securities financing transactions, etc., referencing a single company, EAD shall be equal to the value of the transaction under the assumption of a jump-to-default of the underlying security, provided that when this results in the re-use of possibly existing market risk calculations for IRC that already contain an LGD assumption, the LGD shall be set equal to 100 per cent;

(iii) shall calculate an expected exposure amount or peak exposure amount based on a distribution of exposures that accounts for any non-normality in the said distribution of exposures, including any leptokurtosis, that is, fat tails;

(iv) may, subject to the prior written approval of and such conditions as may be specified in writing by the Registrar, instead of calculating the exposure amount or EAD by multiplying effective expected positive exposure with the specified alpha factor specified in subparagraph (i) above, use a more conservative measure than effective expected positive exposure, such as a VaR model for counterparty exposure or another measure based on peak exposure instead of average exposure;

(v) may in the calculation of its counterparty credit exposure or EAD apply any form of internal model, including a simulation model or analytical model, provided that-

(A) the said internal model adopted by the reporting bank shall specify the forecasting distribution for changes in the market value of a netting set attributable to changes in market variables such as interest rates or foreign exchange rates, which forecasting distribution for changes in the market value of a netting set may include eligible financial collateral specified in subregulation (9)(b)(iv), provided that the bank shall in respect of the said collateral comply with the relevant quantitative, qualitative and data requirements relating to the internal model method, specified in this subregulation (19);

(B) in respect of each relevant future date and based on the changes in the market variables, the model shall compute the bank's exposure to counterparty credit risk relating to a particular netting set;

(C) in the case of a counterparty subject to a margining agreement, the model may capture future movements in the value of collateral;

(D) to the extent that the reporting bank recognises collateral in the estimation of an exposure amount or EAD via current exposure, the bank shall not recognise the said benefit of collateral in its estimates of LGD, that is, the bank shall apply an LGD ratio of an otherwise similar uncollateralised facility when the bank recognises the value of collateral obtained in the estimation of an exposure amount or EAD;

(E) the bank shall at all times comply with the relevant requirements specified in paragraph (f) below.

(vi) shall determine the effective maturity relating to a particular netting set in accordance with the relevant requirements specified in paragraph (c) below;

(vii) shall not in the calculation of its exposure amount or EAD apply any cross-product netting otherwise than in accordance with the relevant requirements specified in paragraph (d) below.

(viii) shall in respect of any netting set subject to margining calculate the relevant exposure in accordance with the relevant requirements specified in paragraph (e) below;

(ix) may in respect of any OTC derivative transaction or contract subject to novation or a legally enforceable bilateral netting agreement recognize the effect of the said novation or netting agreement in accordance with the relevant requirements specified in subregulation (17) above.

(b) *Matters relating to own estimates of alpha*

Subject to the prior written approval of and such conditions as may be specified in writing by the Registrar, a bank that adopted the internal model method for the measurement of the bank's exposure to counterparty credit risk may calculate its own internal estimates of alpha, provided that-

(i) the alpha factor shall in no case be less than 1.2, that is, any internally estimated alpha factor shall be subject to an absolute minimum of 1.2;

(ii) alpha shall constitute a ratio, calculated as-

(A) economic capital derived from a joint simulation of all relevant market and credit risk factors relating to counterparty exposure across all relevant counterparties, as the numerator; **divided by**

(B) economic capital based on expected positive exposure, as the denominator,

(iii) any internal estimate of alpha shall take into account the granularity of the relevant exposures;

(iv) the bank-

(A) shall comply with all relevant operating requirements relating to internal estimates of expected positive exposure specified in paragraph (f) below;

(B) shall demonstrate to the satisfaction of the Registrar that its internal estimate of alpha captures in the numerator the material sources of stochastic dependency of distributions of market values of transactions or portfolios of transactions across counterparties, such as the correlation of defaults across counterparties and between market risk and default;

(C) shall in respect of the denominator, apply expected positive exposure in a manner similar to a fixed outstanding loan amount;

(D) shall ensure that the numerator and denominator of alpha are calculated in a consistent manner with respect to the modelling methodology, parameter specifications and portfolio composition;

(E) shall ensure that the approach applied by the bank in order to determine alpha is based on the internal economic capital approach adopted by the bank, which approach-

(i) shall be duly documented;

(ii) shall be subject to independent validation.

(F) shall frequently review its internal estimates of alpha, but in no case less frequently than once a quarter or more frequently when the composition of the relevant portfolio varies over time;

(G) shall continuously assess its model risk;

(v) when appropriate, any volatility and correlation of market risk factors used in the joint simulation of market risk and credit risk shall be conditioned on the credit risk factor in order to reflect potential increases in volatility or correlation in an economic downturn situation.

(c) *Matters relating to effective maturity*

A bank that obtained the approval of the Registrar to adopt the internal model method for the measurement of the bank's exposure to counterparty credit risk shall in the case of-

(i) a netting set in respect of which the original maturity of the longest-dated contract contained in the said netting set is equal to or exceeds one year, calculate the effective maturity of the relevant exposure through the application of the formula specified below, instead of the formula specified in subregulation (13)(d)(ii)(B), provided that subject to the prior written approval of and such conditions as may be specified in writing by the Registrar, a bank that uses an internal model, amongst other things, to calculate a one-sided credit valuation adjustment relating to its counterparty credit exposure may apply the effective credit duration estimated by the bank in respect of the said exposure instead of the effective maturity calculated in accordance with the formula specified below:

$$M = \frac{\sum_{k=1}^{t_k \le 1year} Effective\,EE_k \times \Delta t_k \times df_k + \sum_{t_k > 1year}^{maturity} EE_k \times \Delta t_k \times df_k}{\sum_{k=1}^{t_k \le 1year} Effective\,EE_k \times \Delta t_k \times df_k}$$

where:

M is the effective maturity, which effective maturity shall be subject to a maximum of five years

df_k is the risk-free discount factor relating to future time period *tk*

(ii) a netting set in respect of which all contracts have an original maturity of less than one year, other than any short-term exposure as envisaged in subparagraph (iii) below, calculate the effective maturity of the relevant exposure in accordance with the formula and requirements specified in subregulation (13)(d)(ii)(B), provided that the bank shall in respect of the said exposures apply a maturity floor equal to one year;

(iii) any short-term exposure calculate the effective maturity of the relevant exposure in accordance with the formula and requirements specified in subregulation (13)(d)(ii)(B)(ii).

(d) *Matters relating to cross-product netting*

(i) A bank that obtained the approval of the Registrar to adopt the internal model method for the measurement of the bank's exposure to counterparty credit risk may include in a particular netting set relating to a particular counterparty any exposure arising from a securities financing transaction or both a securities financing transaction and an OTC derivative contract, provided that-

(A) in all cases the bank shall have in place a legally sound bilateral netting agreement, which agreement shall comply with the relevant requirements and criteria specified in subparagraph (ii) below;

(B) at all times, the bank shall comply with such procedural requirements or additional requirements as may be specified in writing by the Registrar.

(ii) Legal and operational criteria

A bank that wishes to include in a netting set relating to a particular counterparty, exposures that arise from securities financing transactions or both securities financing transactions and OTC derivative contracts shall have in place a legally sound written bilateral netting agreement with the said counterparty, which agreement shall create a single legal obligation covering all relevant bilateral master agreements and transactions, such that the bank would have either a claim to receive or obligation to pay only the net sum of the relevant positive and negative close-out amounts and mark-to-market values in the event of any failure of the counterparty to perform in accordance with the said transactions, contracts or agreements, irrespective whether or not the said failure relates to default, bankruptcy, liquidation or similar circumstances, provided that-

(A) the bank shall have in place written and reasoned legal opinion that conclude with a high degree of certainty that in the event of legal challenge the relevant courts or administrative authorities would find the bank's exposure in terms of the said cross-product netting agreement to be the cross-product net amount under the laws of all relevant jurisdictions-

(i) which legal opinions-

(aa) as a minimum, shall address the validity and enforceability of the said cross-product netting agreement under its terms and the impact of the cross-product netting agreement on the material provisions of any included bilateral master agreement;

(bb) shall generally be recognised in all relevant jurisdictions or communities.

(ii) which laws of all relevant jurisdictions include-

(aa) the law of the jurisdiction in which the counterparty is chartered or incorporated and if the foreign branch of a counterparty is involved, the law of the jurisdiction in which the branch is located;

(bb) the law that governs the relevant individual transactions;

(cc) the law that governs any contract or agreement necessary to effect the netting.

(B) the bank shall have in place robust internal procedures to verify, prior to including a transaction in a netting set, that the transaction is covered by legal opinions that comply with the aforesaid criteria;

(C) the bank shall regularly update all relevant legal opinions in order to ensure continued enforceability of the cross-product netting agreement in light of any possible changes in relevant law;

(D) the cross-product netting agreement shall not contain any walk-away clause, that is, any provision that permits a non-defaulting counterparty to make only limited payments or no payment at all to the estate of the person that defaulted, even when the defaulting person is a net creditor;

(E) each relevant bilateral master agreement and transaction included in across-product netting agreement shall continuously comply with any relevant legal requirement specified in these Regulations that may have an impact on the legal recognition or enforceability of the said bilateral agreement, contract or transaction;

(F) the reporting bank shall duly maintain record of all relevant and required documentation;

(G) the reporting bank shall aggregate the relevant credit risk amounts relating to each relevant counterparty in order to obtain the single legal exposure amount across products and transactions covered by the cross-product netting agreement, which aggregated amount, amongst other things, shall form part of the bank's risk management processes relating to credit risk, credit limits and economic capital;

(H) the reporting bank shall demonstrate to the satisfaction of the Registrar that the bank effectively integrates the risk-mitigating effects of cross-product netting into its risk management and other information technology systems.

(e) *Matters relating to margin agreements*

(i) Subject to the provisions of subparagraphs (ii) and (iii) below, when-

(A) a particular netting set is subject to a margin agreement and the reporting bank's internal model is able to capture the effect of margining in its estimation of expected exposure, the bank may apply for the approval of the Registrar to use the said estimated expected exposure amount directly in the formula relating to effective expected exposure, specified in paragraph (a) above;

(B) a particular counterparty exposure is subject to a margin agreement and the reporting bank's model is able to calculate expected positive exposure without margin agreements but the model is not sufficiently sophisticated to calculate expected positive exposure with margin agreements, the effective expected positive exposure of a counterparty that is subject to a margin agreement, re-margining and daily mark-to-market as envisaged in subparagraph (ii) below, shall be deemed to be equal to the lesser of-

(i) effective expected positive exposure without any held or posted margining collateral, plus any collateral that has been posted to the counterparty independent of the daily valuation and margining process or current exposure, that is, initial margin or independent amount; or

(ii) an add-on that reflects the potential increase in exposure over the margin period of risk plus the larger of-

(aa) the current exposure net of and including all collateral currently held or posted, excluding any collateral called or in dispute; or

(bb) the largest net exposure, including all collateral held or posted under the margin agreement that would not trigger a collateral call, which amount shall reflect all relevant thresholds, minimum transfer amounts, independent amounts and initial margins under the margin agreement,

which add-on shall be calculated as:

$E[\max(\Delta MtM, 0)]$

where:

E[...] is the expectation, that is, the average over scenarios

ΔMtM is the possible change of the mark-to-market value of the transactions during the margin period of risk

Provided that-

(i) changes in the value of collateral shall be reflected using the standard haircut method or own estimates of haircut method envisaged in subregulation (9)(b) of these Regulations, but no collateral payments are assumed during the margin period of risk;

(ii) the margin period of risk shall be subject to the relevant floor specified in subparagraph (ii) below;

(iii) through backtesting, the bank shall test whether realised exposures are consistent with the shortcut method prediction over all relevant margin periods within one year envisaged in this item (B), provided that when backtesting indicates that effective EPE is underestimated, the bank shall take appropriate action to make the method more conservative, such as, for example, scaling up risk factor moves;

(iv) when some of the trades in the netting set have a maturity of less than one year, and the netting set has higher risk factor sensitivities without these trades, the bank shall take this fact into account;

(ii) In the case of transactions subject to daily re-margining and mark-to-market valuation, when the bank calculates its exposure or EAD amount subject to margin agreements, the bank shall apply a floor margin period of risk of five business days for netting sets consisting only of repo-style transactions, and a floor margin period of risk of 10 business days for all other netting sets, provided that-

(A) in respect of all netting sets where the number of trades exceeds 5,000 at any point during a quarter, the bank shall apply a floor margin period of risk of 20 business days for the following quarter;

(B) in respect of netting sets containing one or more trades involving either illiquid collateral, or an OTC derivative that cannot be easily replaced, the bank shall apply a floor margin period of risk of 20 business days.

For purposes of this paragraph (e), "illiquid collateral" and "OTC derivatives that cannot be easily replaced" shall be determined in the context of stressed market conditions and shall be characterised by the absence of continuously active markets where a counterparty would, within two or fewer days, obtain multiple price quotations that would not move the market or represent a price reflecting a market discount in the case of collateral, or premium in the case of an OTC derivative.

Examples of situations where trades shall be deemed illiquid include, but are not limited to, trades that are not marked daily and trades that are subject to specific accounting treatment for valuation purposes, such as OTC derivatives or repo-style transactions referencing securities of which the fair value is determined by models with inputs that are not observed in the market.

(C) in all cases the bank shall duly consider whether trades or securities held as collateral are concentrated in a particular counterparty, and if that counterparty suddenly exited the market, whether the bank would be able to replace its trades;

(D) when the bank experienced more than two margin call disputes on a particular netting set during the preceding two quarters, and the disputes lasted longer than the applicable margin period of risk, before consideration of this provision, the bank shall in respect of the following two quarters apply a margin period of risk at least double the floor specified hereinbefore for that netting set;

(E) in the case of re-margining with a periodicity of N-days, irrespective of the shortcut method or full internal model method envisaged hereinbefore, the bank shall apply a margin period of risk of at least the aforesaid specified floor plus the N days minus one day, that is:

Margin Period of Risk = F + N - 1.

where:

F is the floor number of days specified hereinbefore

N is the said periodicity of N-days for re-margining

(iii) The requirements specified in subregulation (7)(b)(iii) of these Regulations regarding legal certainty, documentation, correlation and a robust risk management process shall, insofar as the said provisions are relevant, *mutatis mutandis* apply in respect of all relevant margin agreements.

(f) *Matters relating to model validation and operational requirements*

A bank that wishes to adopt the internal model method for the measurement of the bank's exposure to counterparty credit risk by estimating expected positive exposure, that is, a bank that wishes to apply its EPE model, shall in addition to such requirements as may be specified in writing by the Registrar comply with-

(i) the qualitative requirements specified in regulation 39(8), which qualitative requirements include matters relating to-

(A) the bank's EPE model;

(B) board and senior management oversight and involvement;

(C) an independent risk control function or unit; and

(D) backtesting.

(ii) the operational requirements specified in regulations 39(9) to 39(12), which operational requirements include matters relating to-

(A) the use test;

(B) stress testing;

(C) the identification of wrong-way risk; and

(D) internal controls and model integrity.

(g) Matters related to minimum required capital and reserve funds for default risk

In order to determine the minimum required amount of capital and reserve funds for default risk in respect of a bank's exposure to counterparty credit risk, a bank that obtained the approval of the Registrar to adopt the internal model method shall use the greater of-

(i) the portfolio-level capital requirement, excluding the requirement related to credit valuation adjustments (CVA) envisaged in paragraph (h) below, based on Effective EPE using current market data; and

(ii) the portfolio-level capital requirement based on Effective EPE using a stress calibration, provided that the stress calibration shall be a single consistent stress calibration for the whole portfolio of relevant counterparties,

Provided that the greater of Effective EPE using current market data and the stress calibration shall be applied on a total portfolio level and not on a counterparty by counterparty basis.

(h) Matters related to minimum required capital and reserve funds for credit valuation adjustments (CVA) for a bank that obtained approval for the internal model method for the measurement of the bank's exposure to counterparty credit risk and the internal models approach for the measurement of specific risk as part of the bank's exposure to market risk

(i) A bank that obtained the approval of the Registrar for the use of the internal model method for the measurement of the bank's exposure to counterparty credit risk and the internal models approach for the measurement of specific risk as part of the bank's exposure to market risk shall calculate the relevant additional required amount of capital and reserve funds by modelling the impact of changes in the counterparties' credit spreads on the CVAs of all relevant OTC derivative counterparties, together with all relevant eligible CVA hedges, using the bank's value-at-risk (VaR) model for bonds, which VaR model is restricted to changes in the counterparties' credit spreads and does not model the sensitivity of CVA to changes in other market factors, such as changes in the value of the reference asset, commodity, currency or interest rate of a derivative, provided that-

(A) regardless of its accounting valuation method used to determine CVA, the additional required amount of capital for CVA shall for each relevant counterparty be based on the formula specified below, in which formula the first factor within the sum represents an approximation of the market implied marginal probability of a default occurring between times t_{i-1} and t_i, acknowledging that market implied default probability or risk neutral probability represents the market price of buying protection against a default, which may differ from the actual probability of a default.

$$CVA = (LGD_{MKT}) \cdot \sum_{i=1}^{T} Max\left(0; exp\left(-\frac{s_{i-1} \cdot t_{i-1}}{LGD_{MKT}}\right) - exp\left(-\frac{s_i \cdot t_i}{LGD_{MKT}}\right)\right) \cdot \left(\frac{EE_{i-1} \cdot D_{i-1} + EE_i \cdot D_i}{2}\right)$$

where:

t_i is the time of the i-th revaluation time bucket, starting from $t_0=0$

t_T is the longest contractual maturity across the netting sets with the counterparty

s_i is the credit spread of the counterparty at tenor t_i, used to calculate the CVA of the counterparty, provided that the bank shall use-

(i) the CDS spread of the relevant counterparty whenever it is available; or

(ii) an appropriate proxy spread that is based on the rating, industry and region of the counterparty when the relevant CDS spread is not available

LGD_{MKT} is the loss given default of the counterparty, which shall be based on-

(i) the spread of a market instrument of the relevant counterparty; or

(ii) the appropriate proxy spread that is based on the rating, industry and region of the counterparty when a counterparty instrument is not available

The aforesaid LGD_{MKT} is different from the LGD used to determine the IRB and CCR default risk requirement, as this LGD_{MKT} is a market assessment rather than an internal estimate

EE_i is the expected exposure to the counterparty at revaluation time t_i, as defined in paragraph (a) above, where exposures of different netting sets for such counterparty are added, and where the longest maturity of each netting set is given by the longest contractual maturity inside the netting set, provided that a bank that adopted the short-cut method envisaged in paragraph (e) above for margined trades shall apply the relevant requirements and formula specified in subparagraph (ii) below

D_i is the default risk-free discount factor at time t_i, where $D_0 = 1$

(ii) When a bank's approved VaR model-

(A) is based on credit spread sensitivities for specific tenors, the bank shall base each relevant credit spread sensitivity on the formula specified below:

$$Regulatory\ CS01_i = 0.0001 \cdot t_i \cdot exp\left(-\frac{s_i \cdot t_i}{LGD_{MKT}}\right) \cdot \left(\frac{EE_{i-1} \cdot D_{i-1} - EE_{i-1} \cdot D_{i-1}}{2}\right)$$

This derivation assumes positive marginal default probabilities before and after time bucket ti and is valid for i<T.

For the final time bucket i = T, the corresponding formula is:

$$Regulatory\ CS01_T = 0.0001 \cdot t_T \cdot exp\left(-\frac{s_T \cdot t_T}{LGD_{MKT}}\right) \cdot \left(\frac{EE_{T-1} \cdot D_{T-1} + EE_T \cdot D_T}{2}\right)$$

(B) uses credit spread sensitivities to parallel shifts in credit spreads, which shall for purposes of these Regulations be referred to as regulatory CS01, the bank shall use the formula specified below, which derivation assumes positive marginal default probabilities;

$$Regulatory\ CS01 = 0.0001 \cdot \sum_{i=1}^{T}\left(t_i \cdot exp\left(-\frac{s_i \cdot t_i}{LGD_{MKT}}\right) - t_{i-1} \cdot exp\left(-\frac{s_{i-1} \cdot t_{i-1}}{LGD_{MKT}}\right)\right) \cdot \left(\frac{EE_{i-1} \cdot D_{i-1} + EE_i \cdot D_i}{2}\right)$$

(iii) Any hedge used and managed by the bank to mitigate its exposure to CVA risk, shall be included in the bank's calculation of the relevant required amount of capital for CVA risk in accordance with the relevant requirements specified in subregulation (15)(b).

(20) Specific matters relating to delivery-versus-payment transactions, and non-delivery-versus-payment or free-delivery transactions

(a) A bank shall in respect of-

(i) any delivery-versus-payment transaction, that is, any transaction settled through a delivery-versus-payment system-

(A) which system makes provision for the simultaneous exchanges of securities for cash, including payment versus payment;

(B) which transaction exposes the reporting bank to a risk of loss equal to the difference between the transaction valued at the agreed settlement price and the transaction valued at current market price, that is, the positive current exposure amount;

(C) which transaction may include-

(i) the settlement of commodities;

(ii) the settlement of foreign exchange;

(iii) the settlement of securities;

(iv) settlement through a licensed exchange, clearing house or central counterparty, and which transactions are subject to daily mark-to-market, payment of daily variation margins and involve a mismatched trade;

(ii) any non-delivery-versus-payment or free-delivery transaction, that is, any transaction in respect of which cash is paid out without receipt of the contracted receivable, which receivable may include a security, foreign currency, gold or a commodity, or conversely, any transaction in respect of which deliverables were delivered without receipt of the contracted cash payment, which transaction exposes the reporting bank to a risk of loss equal to the full amount of the cash amount paid or deliverables delivered,

calculate its required amount of capital and reserve funds in accordance with the relevant requirements specified in paragraph (b) below, provided that-

(A) the provisions of this subregulation (20) shall not apply-

(i) to any repurchase agreement, resale agreement, securities lending transaction or securities borrowing transaction that has failed to settle,

(ii) to any forward contract or one-way cash payment due in respect of an OTC derivative transaction,

which agreement, contract or transaction shall be subject to the relevant requirements specified in subregulations (16) to (19) above, or subregulations (6) to (14);

(B) in the case of a system wide failure of a settlement or clearing system, or a central counterparty, the Registrar may, subject to such conditions as may be specified in writing by the Registrar, exempt a bank from the requirements specified in paragraph (b) below;

(C) a failure of a counterparty to settle a trade as envisaged in this subregulation (20) will not necessarily fall within the ambit of default for the purpose of measuring the reporting bank's exposure to credit risk as envisaged in this regulation 23.

(b) Minimum required amount of capital and reserve funds

A bank shall in the case of-

(i) any delivery-versus-payment transaction in respect of which payment has not taken place in the period of five business days after the contracted settlement date calculate its required amount of capital and reserve funds by multiplying the relevant positive current exposure amount with the relevant percentage specified in table 21 below.

Table 21

Number of working days after the contracted settlement date	**Risk multiplier**
From 5 to 15	8%
From 16 to 30	50%
From 31 to 45	75%
46 or more	100%

(ii) any non-delivery-versus-payment or free-delivery transaction, after the first contractual date relating to payment or delivery when the relevant second leg has not been received at the end of the relevant business day, treat the relevant payment made as a loan exposure, that is, a bank that adopted-

(A) the IRB approach shall calculate its risk-weighted exposure and related required amount of capital and reserve funds in accordance with the relevant formulae and requirements specified in subregulations (11) and (13);

(B) the standardised approach shall calculate its risk-weighted exposure and related required amount of capital and reserve funds in accordance with the relevant requirements specified in subregulations (6) and (8),

provided that-

(i) when the relevant exposure amount is not material, the reporting bank may choose to apply a risk weight of 100 per cent to the said exposure amount;

(ii) when five business days have lapsed following the second contractual payment or delivery date and the second leg has not effectively taken place, the bank that made the first payment leg shall deduct from its common equity tier 1 capital and reserve funds the full amount of value transferred plus any relevant replacement cost until the said second payment or delivery leg is effectively made;

(iii) when determining a risk weight in respect of any failed free-delivery exposure, a bank that adopted-

(aa) the IRB approach for the measurement of the bank's exposure to credit risk may in respect of a counterparty in respect of which the bank has no other banking book exposure assign a PD ratio, based on the relevant counterparty's external rating;

(bb) the advanced IRB approach for the measurement of the bank's exposure to credit risk may apply an LGD ratio of 45 per cent, in lieu of estimating an LGD ratio, provided that the bank shall apply the said ratio to all failed trade exposures; or

(cc) the IRB approach for the measurement of the bank's exposure to credit risk may apply the risk weights specified in the standardised approach, in subregulation (8), or a risk weight of 100 per cent.

(21) EXPECTED LOSS

A bank that adopted the IRB approach for the measurement of the bank's exposure to credit risk shall calculate an aggregate amount in respect of the bank's expected losses, which aggregate expected loss amount-

(a) shall exclude any expected losses in respect of-

(i) the bank's equity exposures subject to the PD/LGD approach prescribed in regulation 31(6)(c);

(ii) credit exposures resulting from a securitisation scheme;

(b) shall be determined by multiplying the expected loss ratio relating to a particular credit exposure with the relevant EAD amount;

(c) shall in the case of-

(i) credit exposures relating to corporate institutions other than specialised lending mapped into the standardised risk grades specified in subregulation (11)(d)(iii)(C), sovereigns, banks and the bank's retail portfolios, which exposures-

(A) are not in default, and

(B) do not constitute protected exposures or eligible exposures subject to the double default approach,

be calculated by multiplying the exposure's relevant PD ratio with its LGD ratio;

(ii) credit exposures relating to corporate institutions, sovereigns, banks and the bank's retail portfolios, which exposures are in default, be calculated by estimating the expected loss amount through the application of the relevant LGD ratio;

(iii) exposures relating to specialised lending mapped into the standardised risk grades specified in subregulation (11)(d)(iii)(C), excluding exposures relating to high-volatility commercial real estate, be calculated by multiplying the relevant EAD amount with the minimum required capital adequacy ratio prescribed in accordance with the relevant provisions of regulation 38(8)(b), and the risk weights specified in table 22 below:

Table 22

Rating grade				
Strong	**Good**	**Satisfactory**	**Weak**	**Default**
5%	10%	35%	100%	625%

(iv) exposures relating to high-volatility commercial real estate mapped into the standardised risk grades specified in subregulation (11)(d)(iii)(C), be calculated by multiplying the relevant EAD amount with the minimum required capital adequacy ratio prescribed in accordance with the relevant provisions of regulation 38(8)(b),and the risk weights specified in table 23 below:

Table 23

Rating grade				
Strong	**Good**	**Satisfactory**	**Weak**	**Default**
5%	5%	35%	100%	625%

(v) other exposures, including any protected exposure or eligible exposure subject to the double default approach, be deemed to be equal to nil.

(22) CREDIT IMPAIRMENT

(a) As a minimum, every bank-

(i) shall have in place a sufficiently robust system for the calculation of credit impairment in accordance with the relevant requirements specified in Financial Reporting Standards issued from time to time;

(ii) shall have in place sufficiently robust processes and board-approved policies, and sufficient dedicated resources, to ensure-

(A) the early identification of assets of deteriorating credit quality;

(B) ongoing oversight of problem assets or credit exposure;

(C) that the bank periodically reviews and assesses-

(i) all relevant problem assets at an individual level, or a portfolio level in the case of credit exposures with homogenous characteristics;

(ii) the adequacy of the bank's asset classification, provisioning and write-offs;

(iii) the value, adequacy and enforceability of all relevant risk mitigation instruments or contracts, including guarantees, credit-derivative instruments or other forms of collateral or credit protection;

(D) that all relevant off-balance-sheet exposures are duly considered;

(E) that the bank's credit impairments and write-offs reflect realistic repayment and recovery expectations;

(F) ongoing collection of past due obligations;

(G) that the bank's board of directors receives timely and appropriate information on the condition of the bank's relevant credit portfolios, including the classification of credit exposures, the level of provisioning and major problem assets;

(iii) shall base its decisions in respect of credit impairment primarily on an assessment of the recoverability of individual on-balance-sheet and off-balance-sheet items or portfolios of items with similar characteristics, such as credit card receivables;

(iv) shall identify and recognise impairments in on-balance-sheet and off-balance-sheet items when it is probable that the bank will not be able to collect, or there is no longer a reasonable assurance that the bank will collect, all amounts due according to the contractual terms of the written agreement.

(b) When the Registrar is of the opinion that the policies and procedures applied by a bank during its assessment of asset quality, risk mitigation and related credit impairment are inadequate, the Registrar may require the relevant bank to raise a specified credit impairment amount against potential credit losses, for example, by requiring in writing the said bank to transfer a specified amount from retained earnings or distributable reserves to a non-distributable reserve.

(c) Standardised approach

A bank that-

(i) adopted the standardised approach for the measurement of a portion of its exposure to credit risk shall determine the relevant portion of any general allowance for credit impairment or general loan-loss reserve that relate to the credit exposures measured in terms of the standardised approach, that is, the bank shall allocate its general allowance for credit impairment or general loan-loss reserve on a pro-rata basis based on the proportion of risk-weighted credit exposure subject to the standardised approach;

(ii) makes exclusive use of the standardised approach to determine its risk-weighted credit exposure shall attribute the relevant total amount of general allowance for credit impairment or general loan-loss reserve raised to the standardised approach;

(iii) adopted the standardised approach for the measurement of its exposure to credit risk may include in tier 2 unimpaired reserve funds, up to a maximum amount of 1.25 per cent of the bank's relevant risk-weighted credit exposure, the relevant gross amount of general allowance for credit impairment or general loan-loss reserve.

(d) IRB approach

(i) A bank that-

(A) makes exclusive use of the IRB approach to determine its risk-weighted credit exposure shall attribute to eligible provisions the aggregate amount of any relevant general allowance or general loan-loss reserve raised for credit impairment;

(B) adopted the IRB approach for the measurement of the bank's exposure to credit risk shall deduct from its eligible provisions the aggregate amount relating to expected loss calculated in accordance with the relevant requirements specified in subregulation (21) above, provided that when the aggregate amount relating to expected losses-

(i) exceeds the bank's eligible provisions, the bank shall in accordance with the relevant requirements specified in regulation 38(5) of these Regulations deduct from its capital and reserve funds the said excess amount;

(ii) is less than the bank's eligible provisions, the bank may include in tier 2 unimpaired reserve funds, in item 85 of the form BA 700, up to a maximum amount of 0.6 per cent of the bank's relevant risk weighted exposure amount, or such a lower percentage as may be specified in writing by the Registrar, the relevant surplus amount;

(ii) Subject to the prior written approval of and such conditions as may be specified in writing by the Registrar, a bank that adopted both the standardised approach and the IRB approach for the measurement of the bank's risk-weighted credit exposure may apply the bank's internal methods to allocate any general allowance for credit impairment or general loan-loss reserve for recognition in capital under either the standardised or IRB approach.

(23) Instructions relating to the completion of the monthly form BA 200 are furnished with reference to the headings and item descriptions of specified columns and line items appearing on form BA 200, as follows:

Items relating to the summary of selected credit risk related information: standardised approach

Item number	Description
2	**Impaired advances** This item shall reflect the aggregate amount of impaired advances. As a minimum, an advance is considered to be impaired when objective evidence exists that the bank is unlikely to collect the total amount due.
3 to 6	**Assets bought-in** These items shall reflect the on-balance sheet carrying value of assets bought-in during the preceding five years to protect an investment, including a loan or advance, which asset has not been disposed of at the endof the reporting period.
7 to 9	**Credit impairment** These items shall reflect the relevant required aggregate amounts of specific credit impairments and portfolio credit impairments raised by the reporting bank in accordance with the relevant requirements specified in Financial Reporting Standards issued from time to time.
11	**Total gross credit exposure** This item shall reflect the relevant required gross amount of credit exposure before the application of credit risk mitigation and any relevant credit conversion factor.
12	**Credit exposure value post credit risk mitigation** This item shall reflect the relevant required aggregate amount of gross credit exposure after the effect of any relevant credit risk mitigation has been included.
13	**Credit exposure post credit risk mitigation and credit conversion** This item shall reflect the relevant required aggregate amount of gross credit exposure after the effects of any relevant credit risk mitigation and credit conversion factors have been included.

Columns relating to summary of on-balance-sheet and off-balance-sheet credit exposure: standardised approach, items 14 to 34

Column number	Description
1	**On-balance-sheet exposure** This column shall reflect the aggregate amount in respect of amounts drawn by clients, that is, utilised amounts, which amounts form part of the current exposure of the reporting bank, before the impact of any relevant credit risk mitigation has been taken into consideration.
2	**Off-balance-sheet exposure** This column shall reflect the aggregate amount relating to, for example, exposures in respect of which a facility has been granted by the reporting bank to an obligor but in respect of which no funds have been paid out and no debit balance has been created, other than any exposure arising from a derivative instrument or repo-style transaction, including any exposure amount in respect of an irrevocable commitment, prior to the application of any relevant credit conversion factor or credit risk mitigation.
3	**Repurchase and/ or resale agreements** This column shall reflect the aggregate amount in respect of any credit exposure arising from a repurchase and/ or resale agreement concluded by the reporting bank.
4	**Derivative instruments** This column shall reflect the aggregate amount in respect of any credit exposure arising from derivative instruments, including any relevant exposure amount relating to counterparty credit risk.
14	**Credit exposure post credit risk mitigation** This column shall reflect the relevant required aggregate amount of gross credit exposure after the impact of any relevant credit risk mitigation has been taken into consideration.

Items relating to reconciliation of credit impairment: standardised approach

Item number	Description
40	**Interest in suspense** Since interest relating to impaired loans may not ultimately contribute to income when doubt exists regarding the recovery of the relevant loan amount or related interest amount due, this item shall reflect the relevant amount of interest in suspense, that is, irrespective of the accounting treatment of interest income from time to time, this item shall reflect the difference between the relevant amount of interest contractually due to the reporting bank by its clients up to the end of the reporting month and the relevant amount of interest income actually included in the operating profit or loss of the bank.

Item number	Description
43	**Recoveries** This item shall reflect the relevant aggregate amount in respect of recoveries, net of any relevant amount relating to specific credit impairment and/ or portfolio credit impairment.

Columns relating to credit capital requirements based on risk weights: standardised approach, items 47 to 69

Column number	Description
1	**Total gross credit exposure** This column shall reflect the aggregate gross credit exposure amount relating to the reporting bank's- (a) on-balance-sheet exposure, gross of any valuation adjustment or credit impairment; (b) off-balance-sheet exposure, including amounts in respect of irrevocable commitments, prior to the application of any credit-conversion factor; (c) exposure in respect of any repurchase or resale agreement; (d) exposure in respect of derivative instruments, calculated in accordance with the relevant requirements specified in subregulations (15) to (19).
2	**Specific credit impairment** This column shall reflect the aggregate amount relating to any specific credit impairment in respect of the exposure amount reported in column 1.
3	**Exposure amount post credit risk mitigation (CRM) and specific credit impairment** This column shall reflect the reporting bank's relevant adjusted exposure amount, that is, the relevant amount net of any credit risk mitigation and specific credit impairment, calculated in accordance with the relevant requirements specified in these Regulations.
4 to 10	**Breakdown of off-balance-sheet exposure based on credit conversion factors (CCF)** Based on the relevant credit conversion factors specified in subregulation (6)(g), these columns shall reflect the appropriate breakdown of the reporting bank's adjusted exposure, that is, amounts included in column 3, relating to off-balance-sheet exposure.

Columns relating to counterparty credit risk based on specified risk weights: standardised approach, items 80 to 86

Column number	Description
1	**Total notional principal amount** This column shall reflect the relevant effective nominal or notional amounts underlying the reported OTC derivative instruments or contracts.
2	**Gross replacement cost** This column shall reflect the respective gross positive fair value amounts of the reported OTC derivative instruments, before the risk reducing effect of any netting agreement that complies with the relevant requirements specified in regulation 23(7)(a), 23(9)(a), 23(17) or 23(18), or any relevant collateral, has been taken into consideration.
3	**Net replacement cost** This column shall reflect the respective gross positive fair value amounts of the reported OTC derivative instruments, after the risk reducing effect of any netting agreement that complies with the relevant requirements specified in regulations 23(7)(a), 23(9)(a), 23(17) or 23(18), but before the effect of any relevant collateral, has been taken into consideration.
4	**Gross potential future exposure add-on** Based on the relevant OTC derivative instruments' or contracts' notional principal amounts, this column shall reflect the potential future exposure add-on amount, before the impact of any netting or collateral has been taken into consideration.
5	**Net potential future exposure add-on** Based on the relevant OTC derivative instruments' or contracts' notional principal amounts, this column shall reflect the adjusted add-on amount for all relevant contracts subject to eligible bilateral netting agreements or contracts.
6	**Collateral value after haircut** This column shall reflect the current value of eligible financial collateral obtained by the reporting bank in respect of OTC derivative instruments, after the effect of any relevant haircut has been taken into consideration.
7	**Credit exposure value** In the absence of an eligible master netting agreement, this column shall reflect the current value of all relevant credit exposures arising from securities financing transactions, after the effect of any relevant haircut has been taken into consideration.

Columns relating to counterparty credit risk based on specified risk weights: standardised approach, items 80 to 86

Column number	Description
8	**Collateral value** In the absence of an eligible master netting agreement, this column shall reflect the current value of eligible financial collateral obtained by the reporting bank in respect of all relevant securities financing transactions, after the effect of any relevant haircut has been taken into consideration.
9	**Netting benefit** This column shall reflect the aggregate amount of all relevant netting benefits arising from eligible master netting agreements taken into consideration in the calculation of the reporting bank's relevant adjusted credit exposure amount arising from securities financing transactions.
10	**Current market value of portfolio** In respect of all relevant OTC derivative instruments, this column shall reflect the relevant current market value of the relevant portfolio of transactions within the netting set with a particular counterparty, before the impact of any collateral has been taken into consideration.
11	**Current market value of collateral** This column shall reflect the relevant market value of the collateral assigned to the relevant netting set in respect of OTC derivative instruments.
12	**Risk position from transaction** This column shall reflect the relevant required risk positions arising from the relevant hedging sets related to OTC derivative instruments.
13	**Risk position from collateral** This column shall reflect the relevant required risk positions from collateral with respect to the relevant hedging sets related to OTC derivative instruments.
14	**Net absolute risk position after the application of CCF's** In respect of all relevant OTC derivative instruments, this column shall reflect the absolute aggregate amount of the required risk positions related to the relevant hedging sets, after the application of any relevant credit conversion factor.

Columns relating to counterparty credit risk based on specified risk weights: standardised approach, items 80 to 86

Column number	Description
15	**Credit exposure value** In the absence of an eligible master netting agreement, this column shall reflect the current value of all relevant credit exposures related to securities financing transactions, after the effect of any relevant haircut has been taken into consideration.
16	**Collateral value** In the absence of an eligible master netting agreement, this column shall reflect the current value of eligible financial collateral obtained by the reporting bank in respect of all relevant securities financing transactions, after the effect of any relevant haircut has been taken into consideration.
17	**Netting benefits** This column shall reflect the aggregate amount of all relevant netting benefits arising from eligible master netting agreements taken into consideration in the calculation of the reporting bank's relevant adjusted credit exposure amount related to securities financing transactions.
18	**Effective expected positive exposure** Based on the relevant requirements specified in subregulation (19)(a), this column shall reflect the relevant required effective expected positive exposure amount related to OTC derivative instruments.
19	**Stressed effective expected positive exposure** Based on the relevant requirements specified in, amongst others, subregulations (15) and (19) of these Regulations, this column shall reflect the relevant required effective expected positive exposure amount related to OTC derivative instruments in terms of a stressed scenario.
20	**Effective expected positive exposure** Based on the relevant requirements specified in subregulation (19)(a), this column shall reflect the relevant required effective expected positive exposure amount related to securities financing transactions.
21	**Stressed effective expected positive exposure** Based on the relevant requirements specified in, amongst others, subregulations (15) and (19) of these Regulations, this column shall reflect the relevant required effective expected positive exposure amount related to securities financing transactions in terms of a stressed scenario.

Columns relating to counterparty credit risk based on specified risk weights: standardised approach, items 80 to 86

Column number	Description
22	**Adjusted exposure amount - OTC derivative instruments** This column shall reflect the relevant required exposure or EAD amount for OTC derivative instruments, calculated in terms of the relevant requirements specified in these Regulations for the current exposure method, the standardised method or the internal model method, which amount shall be net of any relevant incurred CVA loss amount.
23	**Adjusted exposure amount - securities financing transactions** This column shall reflect the relevant required exposure or EAD amount for securities financing transactions, calculated in terms of the relevant requirements specified in these Regulations for the current exposure method, the standardised method or the internal model method, which amount shall be net of any relevant incurred CVA loss amount.
24	**Default risk - OTC derivative instruments** This column shall reflect the relevant required risk weighted exposure amount for OTC derivative instruments, calculated in terms of the relevant requirements specified in these Regulations for the current exposure method, the standardised method or the internal model method, which amount shall be net of any relevant incurred CVA loss amount.
25	**Default risk - securities financing transactions** This column shall reflect the relevant required risk weighted exposure amount for securities financing transactions, calculated in terms of the relevant requirements specified in these Regulations for the current exposure method, the standardised method or the internal model method, which amount shall be net of any relevant incurred CVA loss amount.
26	**Standardised approach for CVA** Based on the relevant requirements specified in subregulation (15), this column shall reflect the relevant required risk weighted exposure amount for CVA risk, calculated in terms of the standardised approach, provided that, when required by the Registrar, this column shall include any relevant amount related to CVA loss exposures arising from securities financing transactions.

Columns relating to counterparty credit risk based on specified risk weights: standardised approach, items 80 to 86

Column number	Description
27	**Advanced approach for CVA** Based on the relevant requirements specified in subregulation (19), this column shall reflect the relevant required risk weighted exposure amount for CVA risk, calculated in terms of the advanced approach, provided that, when required by the Registrar, this column shall include any relevant amount related to CVA loss exposures arising from securities financing transactions.
28	**Total risk weighted exposure** This column shall reflect the relevant required aggregate amount of risk weighted exposure for counterparty credit risk, including any relevant amount of risk weighted exposure- (a) arising from OTC derivative instruments and securities financing transactions; (b) calculated in terms of the relevant requirements specified in these Regulations for the current exposure method, the standardised method or the internal model method; (c) related to CVA risk; (d) related to central counterparties.

Items relating to counterparty credit risk analysis of netting: standardised approach

Item number	Description
87	**Replacement cost** This item shall reflect the relevant required netting benefit taken into consideration for calculating the relevant net replacement cost in respect of OTC derivative instruments.
88	**Potential future exposure add-on** This item shall reflect the relevant required netting benefit taken into consideration for calculating the relevant net potential future exposure add-on amount in respect of OTC derivative instruments.
89	**Securities financing transactions** This items shall reflect the relevant required netting benefit taken into consideration in respect of securities financing transactions.
90	**Cross-product netting** This item shall reflect the relevant required cross-product netting amount taken into consideration by a bank that obtained the approval of the Registrar to use the internal model method for counterparty credit risk.

Columns relating to counterparty credit risk analysis of standardised CVA risk weighted exposure: standardised approach, items 92 to 99

Column number	Description
2	**EAD** This column shall reflect the relevant exposure or EAD amount, calculated in terms of the relevant requirements specified in these Regulations, after the application of any relevant discount factor.
3	**Single-name CDS** This column shall reflect the relevant required notional amount, after the application of any relevant discount factor, of a purchased single-name CDS, single-name contingent CDS and/or other eligible instrument used to hedge CVA risk.
4	**Index CDS** This column shall reflect the relevant required notional amount, after the application of any relevant discount factor, of an eligible purchased index CDS used to hedge CVA risk.
5	**Standardised CVA risk weighted exposure** This column shall reflect the relevant required risk weighted exposure amount related to CVA risk, calculated in terms of the the relevant requirements specified in these Regulations for the standardised approach.

Columns relating to analysis of central counterparty trade exposure: standardised approach, items 100 to 103

Column number	Description
1	**Trade exposure** This column shall reflect the current and potential future exposure amount of a clearing member or a client to a central counterparty arising from any relevant OTC derivative instrument, exchange traded derivative transaction or securities financing transaction, calculated in accordance with the relevant requirements specified in subregulation (15) read with the relevant requirements respectively specified in subregulations (17) to (19) of these Regulations for the current exposure method, the standardised method or the internal model method.
3	**Risk weighted exposure** This column shall reflect the relevant required risk weighted exposure amount of a clearing member or a client to a central counterparty arising from any relevant OTC derivative instrument, exchange traded derivative transaction or securities financing transaction, calculated in accordance with the relevant requirements specified in subregulation (15) read with the relevant requirements respectively specified in subregulations (17) to (19) of these Regulations for the current exposure method, the standardised method or the internal model method.
4	**Calculated in terms of the standardised approach** This column shall reflect the relevant required risk weighted exposure amount calculated in terms of the standardised approach for the measurements of the bank's exposure to credit risk with regards to trade exposures to non-qualifying central counterparties.

Columns relating to analysis of qualifying central counterparty default fund guarantees: standardised approach, items 104 and 105

Column number	Description
1	**Initial margin collateral posted with a central counterparty** Based on the relevant requirements specified in these Regulations, this column shall reflect the relevant aggregate amount related to a clearing member's or client's funded collateral posted or provided to a central counterparty to mitigate the potential future exposure of the central counterparty to the clearing member arising from the possible future change in the value of their transactions, provided that, in accordance with the relevant requirements specified in these Regulations, initial margin shall exclude any relevant amount related to contributions to a central counterparty in terms of any mutualised loss sharing arrangement, that is, when a central counterparty uses initial margin to mutualise losses among the clearing members, the relevant amount shall be treated as a default fund exposure.